

4/12

ALS Laboratory
 CHAIN OF CUSTODY
 Client: **ERM**
 Office: **Sydney**
 Project: **Project Symphony**
 Order Number: **0224193**
 Project Manager: **JOSEPH FERRING**
 Sampler: **STEPHEN MULLIGAN**
 COC emailed to ALS? (YES / NO)
 Email Reports to (will default to PM if no other addresses are listed): **John.cwing@erm.com**
 Email Invoice to (will default to PM if no other addresses are listed): **Stephen.Mulligan@erm.com**
 Comments/Special Handling/Storage or Disposal: **Symphony.mulligan**

TURNAROUND REQUIREMENTS:
 Standard TAT may be longer for some tests e.g.:
 Ultra Trace Organics
 ALS QUOTE NO.: SY794413
 SITE: **BAYSWATER / LIDDELL**
 CONTACT PH: **02 9339 2222**
 SAMPLER MOBILE: **02 9339 2222**
 EDD FORMAT (or default):

FOR LABORATORY USE ONLY (Circle)
 Custody Seal Intact? Yes No
 Free ice / frozen ice bricks present upon receipt? Yes No
 Random Sample Temperature on Receipt: °C
 Other comment:
 RECEIVED BY: **Frank MS**
 DATE/TIME: **26-11-13 1900**
 RELINQUISHED BY: **Stephen Mulligan**
 DATE/TIME: **20/11/13**

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	CONTAINER INFORMATION (refer to TOTAL CONTAINERS)	ANALYSIS REQUIRED	Additional Information
1	BT_MW03-0.6	20/11/13	SOIL	1 Jar + 1 bag	2	17 Metals (As, Ba, Pb, Zn, Hg), S-2 Metals (As, Cd, Cr, Cu, Ni, Mn, Ni, Pb, V, Zn, B, Mo, Ti, Se), S-24 TRHCs (C40/BTEXN, PAH, Phenols), VOC Target Scan, PCB, pH (1-s), Exchangeable cations (ED07), PFOS/PFOA, Asbestos (absence/presence), Particle Sizing to 75µm (Sieve), Organic Matter plus Carbon (EP04)	Common on likely contaminant levels, distributed samples requiring specific COC analysis etc.
2	BV-MW11-4.0	20/11/13	soil	1 Jar	1	17 Metals (As, Ba, Pb, Zn, Hg), S-2 Metals (As, Cd, Cr, Cu, Ni, Mn, Ni, Pb, V, Zn, B, Mo, Ti, Se), S-24 TRHCs (C40/BTEXN, PAH, Phenols), VOC Target Scan, PCB, pH (1-s), Exchangeable cations (ED07), PFOS/PFOA, Asbestos (absence/presence), Particle Sizing to 75µm (Sieve), Organic Matter plus Carbon (EP04)	
3	BL_MW05-0.1	20/11/13	soil	1 Jar + 1 bag	2	17 Metals (As, Ba, Pb, Zn, Hg), S-2 Metals (As, Cd, Cr, Cu, Ni, Mn, Ni, Pb, V, Zn, B, Mo, Ti, Se), S-24 TRHCs (C40/BTEXN, PAH, Phenols), VOC Target Scan, PCB, pH (1-s), Exchangeable cations (ED07), PFOS/PFOA, Asbestos (absence/presence), Particle Sizing to 75µm (Sieve), Organic Matter plus Carbon (EP04)	
4	BL-SB04-0.5	20/11/13		1 Jar + 1 bag	2	17 Metals (As, Ba, Pb, Zn, Hg), S-2 Metals (As, Cd, Cr, Cu, Ni, Mn, Ni, Pb, V, Zn, B, Mo, Ti, Se), S-24 TRHCs (C40/BTEXN, PAH, Phenols), VOC Target Scan, PCB, pH (1-s), Exchangeable cations (ED07), PFOS/PFOA, Asbestos (absence/presence), Particle Sizing to 75µm (Sieve), Organic Matter plus Carbon (EP04)	
5	BL-SB05-0.5	20/11/13		1 Jar + 1 bag	2	17 Metals (As, Ba, Pb, Zn, Hg), S-2 Metals (As, Cd, Cr, Cu, Ni, Mn, Ni, Pb, V, Zn, B, Mo, Ti, Se), S-24 TRHCs (C40/BTEXN, PAH, Phenols), VOC Target Scan, PCB, pH (1-s), Exchangeable cations (ED07), PFOS/PFOA, Asbestos (absence/presence), Particle Sizing to 75µm (Sieve), Organic Matter plus Carbon (EP04)	
6	BL-MW01-1.5	20/11/13		1 Jar + 1 bag	2	17 Metals (As, Ba, Pb, Zn, Hg), S-2 Metals (As, Cd, Cr, Cu, Ni, Mn, Ni, Pb, V, Zn, B, Mo, Ti, Se), S-24 TRHCs (C40/BTEXN, PAH, Phenols), VOC Target Scan, PCB, pH (1-s), Exchangeable cations (ED07), PFOS/PFOA, Asbestos (absence/presence), Particle Sizing to 75µm (Sieve), Organic Matter plus Carbon (EP04)	
7	BL-MW06-0.25	20/11/13		1 Jar + 1 bag	2	17 Metals (As, Ba, Pb, Zn, Hg), S-2 Metals (As, Cd, Cr, Cu, Ni, Mn, Ni, Pb, V, Zn, B, Mo, Ti, Se), S-24 TRHCs (C40/BTEXN, PAH, Phenols), VOC Target Scan, PCB, pH (1-s), Exchangeable cations (ED07), PFOS/PFOA, Asbestos (absence/presence), Particle Sizing to 75µm (Sieve), Organic Matter plus Carbon (EP04)	
8	BV-SB05-0.5	20/11/13		1 Jar + 1 bag	2	17 Metals (As, Ba, Pb, Zn, Hg), S-2 Metals (As, Cd, Cr, Cu, Ni, Mn, Ni, Pb, V, Zn, B, Mo, Ti, Se), S-24 TRHCs (C40/BTEXN, PAH, Phenols), VOC Target Scan, PCB, pH (1-s), Exchangeable cations (ED07), PFOS/PFOA, Asbestos (absence/presence), Particle Sizing to 75µm (Sieve), Organic Matter plus Carbon (EP04)	
9	RB1-20113-8M	20/11/13		1x metals, 2x VOC, 1x VOC	4	17 Metals (As, Ba, Pb, Zn, Hg), S-2 Metals (As, Cd, Cr, Cu, Ni, Mn, Ni, Pb, V, Zn, B, Mo, Ti, Se), S-24 TRHCs (C40/BTEXN, PAH, Phenols), VOC Target Scan, PCB, pH (1-s), Exchangeable cations (ED07), PFOS/PFOA, Asbestos (absence/presence), Particle Sizing to 75µm (Sieve), Organic Matter plus Carbon (EP04)	
10	BL-SB05-2.9	21/11/13		1 Jar	1	17 Metals (As, Ba, Pb, Zn, Hg), S-2 Metals (As, Cd, Cr, Cu, Ni, Mn, Ni, Pb, V, Zn, B, Mo, Ti, Se), S-24 TRHCs (C40/BTEXN, PAH, Phenols), VOC Target Scan, PCB, pH (1-s), Exchangeable cations (ED07), PFOS/PFOA, Asbestos (absence/presence), Particle Sizing to 75µm (Sieve), Organic Matter plus Carbon (EP04)	

Environmental Division
 Sydney
 Work Order
ES1325883



Telephone : +61-2-8784 8555

Organised By / Date:
Lab / Analysis:
Relinquished By / Date:
Connote / Courier:
WO No:
Attach By PC / Internal Sheet:

Suit - ...
 Asbestos / Newcastle
 Asbestos bags kept in ...

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved; ...

Wael Saleh

From: Tom Calthorpe <Tom.Calthorpe@erm.com>
Sent: Thursday, 28 November 2013 7:19 PM
To: Wael Saleh
Subject: RE: ALS RESULTS FOR ES1325883

Hi Wael,

Can you please analyse the sample below for: 8 metals, TRH, BTEX, PAH, Phenol, PCB, PFOS/PFOA

Thanks,

Tom

From: Joseph Ferring
Sent: Thursday, November 28, 2013 1:32 PM
To: Joshua Kowald; Stephen Mulligan; Tom Calthorpe; Andrew Morris; Tamatoa Armani; Josh Girvin; Wijnand Germs
Cc: Hamish Campbell; Kate Fox; ERM Australia Project Symphony MacGen
Subject: FW: ALS RESULTS FOR ES1325883
Importance: High

Hi guys, can you please respond to Wael directly at ALS if this is your sample?

cheers

Joe Ferring
Senior Environmental Scientist

ERM
Building C, 33 Saunders Street Pyrmont NSW 2009
Locked Bag 24, Broadway NSW 2007 AUSTRALIA

T: +61 (0)2 8584 8890 (Direct)
T: +61 (0)2 8584 8888 (Office)
F: +61 (0)2 8584 8800
M: +61 424970468
joseph.ferring@erm.com

www.erm.com

From: Wael Saleh [<mailto:Wael.Saleh@alsglobal.com>]
Sent: Thursday, November 28, 2013 1:27 PM
To: Joseph Ferring
Subject: ALS RESULTS FOR ES1325883
Importance: High

Hi Joe,

Please note that we received sample BL_SB05_2.9 extra and placed on hold.

If you want this sample analysed, please let me know ASAP.

Regards

Wael Saleh

Creation and Committal Coordinator
ALS | Environmental Division

277-289 Woodpark Road
Smithfield NSW 2164 Australia

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Please see our latest:

[EnviroMail 68 - Sampling and Analysis Implications of the new NEPM - July 2013](#)

[EnviroMail 69 - Testing Requirements of the new NEPM - July 2013](#)

[EnviroMail 70 - Variation of Naphthalene by SVOC and VOC Methods in Water - July 2013](#)

[EnviroMail 71 - Cryptosporidium Infectivity - July 2013](#)

[EnviroMail 72 - Algal Toxins and Quantitative Analysis - August 2013](#)

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Jacob Waugh

From: Barbara Hanna
Sent: Friday, 29 November 2013 3:55 PM
To: Jacob Waugh
Subject: FW: ERM Symphony: labelling and additional analysis
Attachments: image001.jpg

Hi Jacob,

Could you please arrange the following and I will arrange the sample ID changes.

Thanks!!!

Additionally:

ES1325573-011 (T01_221113_TH) – please forward to Envirolab for analysis

ES1325883-001 (BI_MW03_0.6) – analyse for Electrical Conductivity (paste)

ES1325882-001 (BH_SB06_1.6) – analyse for Electrical Conductivity (paste)

ES1325882-002 (BH_MW04_3.0) – analyse for Electrical Conductivity (paste)

ES1325882-003 (BH_SB08_3.0) – analyse for Electrical Conductivity (paste)

ES1325882-004 (BH_MW03_4.5) – analyse for Electrical Conductivity (paste)

ES1325879-002 (BI_MW01_3.0) – analyse for Electrical Conductivity (paste)

Kind Regards

Barbara Hanna

Client Services Manager
ALS | Environmental Division

277-289 Woodpark Road
Smithfield NSW 2164 Australia

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Please see our latest [EnviroMail 68 - Sampling and Analysis Implications of the new NEPM - July 2013](#)

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Reduction in Sample Volumes - Improving quality, safety, efficiency and sustainability in environmental practices



Please consider the environment before printing this email.

From: Kate Fox [mailto:Kate.Fox@erm.com]
Sent: Friday, 29 November 2013 2:27 PM
To: Barbara Hanna
Cc: ERM Australia Project Symphony MacGen
Subject: ERM Symphony: labelling and additional analysis

Hi Barbara,

A few more requests re: Symphony samples please!

Could the following be re-labelled:

Lab Sample ID	Current ID	Correct ID
ES1325579-001	LO_SB06_2.9-3.0	LO_SB06_3.0
ES1325579-002	LO_SB07_2.9-3.0	LO_SB07_3.0
ES1325579-003	LO_SB09_2.9-3.0	LO_SB09_3.0
ES1325579-004	LP_MW01_2.9-3.0	LP_MW01_3.0
ES1325579-005	LP_SB11_1.1-1.2	LP_SB11_1.2
ES1325579-006	LP_SB11_2.9-3.0	LP_SB11_3.0
ES1325579-007	LP_SB12_0.7-0.8	LP_SB12_0.8
ES1325579-008	LP_SB12_2.9-3.0	LP_SB12_3.0
ES1325579-009	LN_MW04_2.9-3.0	LN_MW04_3.0
ES1325572-001	BR_MW05_14 mbgs	BR_MW05_14.0
ES1325572-002	BR_MW05_31 mbgs	BR_MW05_31.0
ES1325572-003	TRIP BLANK_(10)	TB10_151113
ES1325572-004	TRIP SPIKE_WG(2)	TS2_151113
ES1325572-005	TSC	TSC_151113
ES1325880-001	BU_SB02_2.5	BV_SB02_2.5
ES1325880-009	TRIP BLANK 1	TB1_201113
ES1325880-010	TRIP BLANK 7	TB7_201113
ES1325573-001	TRIP BLANK	TB_221113
ES1325573-002	TRIP SPIKE	TS_221113
ES1325573-012	RINSATE_201113_NH	R01_201113_TH
ES1325573-013	RINSATE_211113_TH	R01_211113_TH
ES1325573-014	RINSATE_221113_TH	R01_221113_TH

Additionally:

ES1325573-011 (T01_221113_TH) – please forward to Envirolab for analysis

ES1325883-001 (BI_MW03_0.6) – analyse for Electrical Conductivity (paste)

ES1325882-001 (BH_SB06_1.6) – analyse for Electrical Conductivity (paste)
ES1325882-002 (BH_MW04_3.0) – analyse for Electrical Conductivity (paste)
ES1325882-003 (BH_SB08_3.0) – analyse for Electrical Conductivity (paste)
ES1325882-004 (BH_MW03_4.5) – analyse for Electrical Conductivity (paste)

ES1325879-002 (BI_MW01_3.0) – analyse for Electrical Conductivity (paste)

Many thanks,
Kate



Kate Fox
Environmental Resources Management
Level 1, 60 Leichhardt Street
Spring Hill, Brisbane, QLD, 4000

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SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1325883	
Client : ENVIRO RESOURCES MANAGEMENT	Laboratory : Environmental Division Sydney
Contact : MR JOSEPH FERRING	Contact : Barbara Hanna
Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail : joseph.ferring@erm.com	E-mail : Barbara.Hanna@alsglobal.com
Telephone : +61 02 8584 8888	Telephone : +61 2 8784 8555
Facsimile : +61 02 8584 8800	Facsimile : +61 2 8784 8555
Project : PROJECT SYMPHONY	Page : 1 of 3
Order number : 0224193	
C-O-C number : ----	Quote number : ES2013ENVRES0369 (SY/794/13)
Site : BAYSWATER	
Sampler : S.M	QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 26-NOV-2013	Issue Date : 02-DEC-2013 10:15
Client Requested Due Date : 04-DEC-2013	Scheduled Reporting Date : 04-DEC-2013

Delivery Details

Mode of Delivery : Carrier	Temperature : 4.8°C - Ice present
No. of coolers/boxes : 7 HARD	No. of samples received : 10
Security Seal : Intact.	No. of samples analysed : 10

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA032 Electrical Conductivity (Saturated Paste)	SOIL - EA200 Asbestos Identification in Soils	SOIL - ED007 CEC / Exchangeable Cations (ED007)-All	SOIL - EP066 (solids) Polychlorinated Biphenyls by GC/MS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP231 Perfluorooxy Acids and Sulfonates by LC/MS/MS	SOIL - NT-1S Major Cations (Ca, Mg, Na, K)
ES1325883-001	20-NOV-2013 15:00	BI_MW03_0.6	✓	✓	✓	✓				✓
ES1325883-002	20-NOV-2013 15:00	BV_MW11_4.0					✓	✓		
ES1325883-003	20-NOV-2013 15:00	BL_MW05_0.1			✓		✓			
ES1325883-004	20-NOV-2013 15:00	BL_SB04_0.5			✓					
ES1325883-005	20-NOV-2013 15:00	BL_SB05_0.5			✓					
ES1325883-006	20-NOV-2013 15:00	BL_MW01_1.5			✓		✓			
ES1325883-007	20-NOV-2013 15:00	BL_MW06_0.25			✓		✓			
ES1325883-008	20-NOV-2013 15:00	BV_SB05_0.5			✓					
ES1325883-010	21-NOV-2013 15:00	BL_SB05_2.9					✓		✓	

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - NT-2S Major Anions (Cl, SO4)	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-27 TRH/BTEX/NPAH/Phenols/6Metals
ES1325883-001	20-NOV-2013 15:00	BI_MW03_0.6	✓		✓
ES1325883-002	20-NOV-2013 15:00	BV_MW11_4.0			✓
ES1325883-003	20-NOV-2013 15:00	BL_MW05_0.1		✓	
ES1325883-004	20-NOV-2013 15:00	BL_SB04_0.5		✓	
ES1325883-005	20-NOV-2013 15:00	BL_SB05_0.5		✓	
ES1325883-006	20-NOV-2013 15:00	BL_MW01_1.5		✓	
ES1325883-007	20-NOV-2013 15:00	BL_MW06_0.25		✓	
ES1325883-008	20-NOV-2013 15:00	BV_SB05_0.5			✓
ES1325883-010	21-NOV-2013 15:00	BL_SB05_2.9			✓



Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP066-PCB-WA Polychlorinated Biphenyls (PCB)	WATER - EP074 (water) Volatile Organic Compounds	WATER - W-27T TRH/BTEX/NPAH/Phenols/Total 8 Metals
ES1325883-009	20-NOV-2013 15:00	R01_201113_SM	✓	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

JOHN EWING

- *AU Certificate of Analysis - NATA (COA) Email john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email john.ewing@erm.com
- A4 - AU Tax Invoice (INV) Email john.ewing@erm.com
- Chain of Custody (CoC) (COC) Email john.ewing@erm.com
- EDI Format - ENMRG (ENMRG) Email john.ewing@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM) Email john.ewing@erm.com
- EDI Format - ESDAT (ESDAT) Email john.ewing@erm.com
- EDI Format - XTab (XTAB) Email john.ewing@erm.com

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA) Email joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email joseph.ferring@erm.com
- Chain of Custody (CoC) (COC) Email joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG) Email joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM) Email joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT) Email joseph.ferring@erm.com
- EDI Format - XTab (XTAB) Email joseph.ferring@erm.com

SYMPHONY MACGEN

- *AU Certificate of Analysis - NATA (COA) Email symphony.macgen@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email symphony.macgen@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email symphony.macgen@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email symphony.macgen@erm.com
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- Chain of Custody (CoC) (COC) Email symphony.macgen@erm.com
- EDI Format - ENMRG (ENMRG) Email symphony.macgen@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM) Email symphony.macgen@erm.com
- EDI Format - ESDAT (ESDAT) Email symphony.macgen@erm.com
- EDI Format - XTab (XTAB) Email symphony.macgen@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV) Email au.accounts@erm.com

CERTIFICATE OF ANALYSIS

Work Order	: ES1325883	Page	: 1 of 18
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: PROJECT SYMPHONY	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0224193	Date Samples Received	: 26-NOV-2013
C-O-C number	: ----	Issue Date	: 06-DEC-2013
Sampler	: S.M	No. of samples received	: 10
Site	: BAYSWATER	No. of samples analysed	: 10
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am' Amosite (brown asbestos)**
- **EA200 'Ch' Chrysotile (white asbestos)**
- **EA200 'Cr' Crocidolite (blue asbestos)**
- **EA200 'Trace' - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres**
- **EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.**
- **EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.**
- **EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.**



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shaun Spooner	Laboratory Technician	Newcastle - Asbestos



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BI_MW03_0.6	BV_MW11_4.0	BL_MW05_0.1	BL_SB04_0.5	BL_SB05_0.5
				20-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1325883-001	ES1325883-002	ES1325883-003	ES1325883-004	ES1325883-005
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	4.7	----	----	----	----
EA032: Electrical Conductivity (saturated paste)								
Electrical Conductivity (Saturated Paste)	----	1	µS/cm	328	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	18.8	24.3	21.1	12.5	17.4
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	No	No
Asbestos Type	1332-21-4	-	--	-	----	-	-	-
Sample weight (dry)	----	0.01	g	362	----	206	295	200
APPROVED IDENTIFIER:	----	-	--	C.OWLER	----	C.OWLER	C.OWLER	C.OWLER
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	2.4	----	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	4.7	----	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	0.4	----	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	0.7	----	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	8.3	----	----	----	----
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	180	----	----	----	----
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	160	----	----	----	----
ED093S: Soluble Major Cations								
Calcium	7440-70-2	10	mg/kg	<10	----	----	----	----
Magnesium	7439-95-4	10	mg/kg	40	----	----	----	----
Sodium	7440-23-5	10	mg/kg	130	----	----	----	----
Potassium	7440-09-7	10	mg/kg	150	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	9	<5	7	11	8
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	19	12	14	12	10
Copper	7440-50-8	5	mg/kg	19	8	18	23	23
Lead	7439-92-1	5	mg/kg	18	12	12	18	16
Nickel	7440-02-0	2	mg/kg	11	5	17	26	22



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BI_MW03_0.6	BV_MW11_4.0	BL_MW05_0.1	BL_SB04_0.5	BL_SB05_0.5
				20-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1325883-001	ES1325883-002	ES1325883-003	ES1325883-004	ES1325883-005
EG005T: Total Metals by ICP-AES - Continued								
Zinc	7440-66-6	5	mg/kg	49	27	66	76	88
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	0.5	mg/kg	----	<0.5	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	----	----	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	----	----	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	----	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	----	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	----	----	----
Chloromethane	74-87-3	5	mg/kg	----	<5	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	----	<5	----	----	----
Bromomethane	74-83-9	5	mg/kg	----	<5	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BI_MW03_0.6	BV_MW11_4.0	BL_MW05_0.1	BL_SB04_0.5	BL_SB05_0.5
				20-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1325883-001	ES1325883-002	ES1325883-003	ES1325883-004	ES1325883-005
EP074E: Halogenated Aliphatic Compounds - Continued								
Chloroethane	75-00-3	5	mg/kg	----	<5	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BI_MW03_0.6	BV_MW11_4.0	BL_MW05_0.1	BL_SB04_0.5	BL_SB05_0.5
				20-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1325883-001	ES1325883-002	ES1325883-003	ES1325883-004	ES1325883-005
EP074F: Halogenated Aromatic Compounds - Continued								
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	----	----	----
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	5	mg/kg	----	<5	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	----	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	----	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	----	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				BI_MW03_0.6	BV_MW11_4.0	BL_MW05_0.1	BL_SB04_0.5	BL_SB05_0.5
				20-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1325883-001	ES1325883-002	ES1325883-003	ES1325883-004	ES1325883-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	----	----	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	----
EP066S: PCB Surrogate								



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BI_MW03_0.6	BV_MW11_4.0	BL_MW05_0.1	BL_SB04_0.5	BL_SB05_0.5
				20-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1325883-001	ES1325883-002	ES1325883-003	ES1325883-004	ES1325883-005
EP066S: PCB Surrogate - Continued								
Decachlorobiphenyl	2051-24-3	0.1	%	----	114	118	----	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	93.7	----	----	----
Toluene-D8	2037-26-5	0.1	%	----	102	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	93.4	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	86.7	87.9	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	94.8	94.4	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	107	110	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	105	110	----	----	----
Anthracene-d10	1719-06-8	0.1	%	93.3	99.7	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	89.3	101	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	101	98.1	----	----	----
Toluene-D8	2037-26-5	0.1	%	95.9	95.7	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	95.2	95.3	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BL_MW01_1.5	BL_MW06_0.25	BV_SB05_0.5	BL_SB05_2.9	----
				20-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00	21-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1325883-006	ES1325883-007	ES1325883-008	ES1325883-010	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	24.1	18.6	18.2	14.7	----
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	No	----	----
Asbestos Type	1332-21-4	-	--	-	-	-	----	----
Sample weight (dry)	----	0.01	g	223	436	537	----	----
APPROVED IDENTIFIER:	----	-	--	C.OWLER	C.OWLER	S.SPOONER	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	10	10	17	19	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	7	18	8	9	----
Copper	7440-50-8	5	mg/kg	19	25	29	21	----
Lead	7439-92-1	5	mg/kg	16	18	29	24	----
Nickel	7440-02-0	2	mg/kg	5	28	17	13	----
Zinc	7440-66-6	5	mg/kg	34	73	75	63	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.1	<0.1	<0.1	<0.1	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	----	<0.1	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	----	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	<0.5	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	<0.5	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	----	----	<2	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	----	<0.5	<0.5	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BL_MW01_1.5	BL_MW06_0.25	BV_SB05_0.5	BL_SB05_2.9	----
				20-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00	21-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1325883-006	ES1325883-007	ES1325883-008	ES1325883-010	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	----	----	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	----	----	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	----	----	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	----	----	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	----	----	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	----	----	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	----	----	<0.5	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	----	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	<0.5	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	----	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	----	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	0.6	0.6	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	1.2	1.2	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	----	----	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	----	----	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	----	----	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	----	----	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	----	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	----	<10	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	----	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	----	----	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	----	----	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	<50	<50	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BL_MW01_1.5	BL_MW06_0.25	BV_SB05_0.5	BL_SB05_2.9	----
				20-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00	21-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1325883-006	ES1325883-007	ES1325883-008	ES1325883-010	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	<50	<50	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	----	----	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	----	----	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	----	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	----	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	----	----	<0.2	<0.2	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	----	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg	----	----	<1	<1	----
EP231: Perfluorinated Compounds								
PFOS	1763-23-1	0.0005	mg/kg	----	----	----	<0.0005	----
PFOA	335-67-1	0.0005	mg/kg	----	----	----	<0.0005	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	----	----	----	<0.005	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	125	104	----	63.8	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	----	----	92.5	98.1	----
2-Chlorophenol-D4	93951-73-6	0.1	%	----	----	102	97.7	----
2,4,6-Tribromophenol	118-79-6	0.1	%	----	----	105	75.9	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	107	78.5	----
Anthracene-d10	1719-06-8	0.1	%	----	----	94.3	69.3	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	95.4	70.9	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	106	92.0	----
Toluene-D8	2037-26-5	0.1	%	----	----	100	93.8	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	102	90.0	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_201113_SM

Client sampling date / time

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Compound	CAS Number	LOR	Unit	ES1325883-009	---	---	---	---
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	---	1	µg/L	<1	---	---	---	---
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	1	µg/L	<1	---	---	---	---
Toluene	108-88-3	2	µg/L	<2	---	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	---	---	---	---
Styrene	100-42-5	5	µg/L	<5	---	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	---	---	---	---
Isopropylbenzene	98-82-8	5	µg/L	<5	---	---	---	---
n-Propylbenzene	103-65-1	5	µg/L	<5	---	---	---	---
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	---	---	---	---
sec-Butylbenzene	135-98-8	5	µg/L	<5	---	---	---	---
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	---	---	---	---
tert-Butylbenzene	98-06-6	5	µg/L	<5	---	---	---	---
p-Isopropyltoluene	99-87-6	5	µg/L	<5	---	---	---	---
n-Butylbenzene	104-51-8	5	µg/L	<5	---	---	---	---
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	---	---	---	---
2-Butanone (MEK)	78-93-3	50	µg/L	<50	---	---	---	---
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	---	---	---	---
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	---	---	---	---
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	---	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_201113_SM

Client sampling date / time

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Compound	CAS Number	LOR	Unit	ES1325883-009	---	---	---	---
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EP074D: Fumigants

2.2-Dichloropropane	594-20-7	5	µg/L	<5	---	---	---	---
1.2-Dichloropropane	78-87-5	5	µg/L	<5	---	---	---	---
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	---	---	---	---
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	---	---	---	---
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	---	---	---	---

EP074E: Halogenated Aliphatic Compounds

Dichlorodifluoromethane	75-71-8	50	µg/L	<50	---	---	---	---
Chloromethane	74-87-3	50	µg/L	<50	---	---	---	---
Vinyl chloride	75-01-4	50	µg/L	<50	---	---	---	---
Bromomethane	74-83-9	50	µg/L	<50	---	---	---	---
Chloroethane	75-00-3	50	µg/L	<50	---	---	---	---
Trichlorofluoromethane	75-69-4	50	µg/L	<50	---	---	---	---
1.1-Dichloroethene	75-35-4	5	µg/L	<5	---	---	---	---
Iodomethane	74-88-4	5	µg/L	<5	---	---	---	---
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	---	---	---	---
1.1-Dichloroethane	75-34-3	5	µg/L	<5	---	---	---	---
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	---	---	---	---
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	---	---	---	---
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	---	---	---	---
Carbon Tetrachloride	56-23-5	5	µg/L	<5	---	---	---	---
1.2-Dichloroethane	107-06-2	5	µg/L	<5	---	---	---	---
Trichloroethene	79-01-6	5	µg/L	<5	---	---	---	---
Dibromomethane	74-95-3	5	µg/L	<5	---	---	---	---
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	---	---	---	---
1.3-Dichloropropane	142-28-9	5	µg/L	<5	---	---	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	---	---	---	---
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	---	---	---	---
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	---	---	---	---
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	---	---	---	---
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	---	---	---	---
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	---	---	---	---
Pentachloroethane	76-01-7	5	µg/L	<5	---	---	---	---
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	---	---	---	---
Hexachlorobutadiene	87-68-3	5	µg/L	<5	---	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_201113_SM

Client sampling date / time

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Compound	CAS Number	LOR	Unit	ES1325883-009	---	---	---	---
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EP074E: Halogenated Aliphatic Compounds - Continued

EP074F: Halogenated Aromatic Compounds

Chlorobenzene	108-90-7	5	µg/L	<5	---	---	---	---
Bromobenzene	108-86-1	5	µg/L	<5	---	---	---	---
2-Chlorotoluene	95-49-8	5	µg/L	<5	---	---	---	---
4-Chlorotoluene	106-43-4	5	µg/L	<5	---	---	---	---
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	---	---	---	---
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	---	---	---	---
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	---	---	---	---
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	---	---	---	---
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	---	---	---	---

EP074G: Trihalomethanes

Chloroform	67-66-3	5	µg/L	<5	---	---	---	---
Bromodichloromethane	75-27-4	5	µg/L	<5	---	---	---	---
Dibromochloromethane	124-48-1	5	µg/L	<5	---	---	---	---
Bromoform	75-25-2	5	µg/L	<5	---	---	---	---

EP074H: Naphthalene

Naphthalene	91-20-3	7	µg/L	<7	---	---	---	---
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EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---

EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_201113_SM

Client sampling date / time

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ES1325883-009

EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Compound	CAS Number	LOR	Unit					
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---

EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	---	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---	---

EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	---	---	---	---

EP080: BTEXN

Benzene	71-43-2	1	µg/L	<1	---	---	---	---
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Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_201113_SM

Client sampling date / time

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Compound	CAS Number	LOR	Unit	ES1325883-009	---	---	---	---
EP080: BTEXN - Continued								
Toluene	108-88-3	2	µg/L	<2	---	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	---	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	---	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	---	---	---	---
^ Sum of BTEX	----	1	µg/L	<1	---	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	---	---	---	---
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	81.3	---	---	---	---
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	115	---	---	---	---
Toluene-D8	2037-26-5	0.1	%	120	---	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	107	---	---	---	---
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	25.7	---	---	---	---
2-Chlorophenol-D4	93951-73-6	0.1	%	41.5	---	---	---	---
2,4,6-Tribromophenol	118-79-6	0.1	%	87.2	---	---	---	---
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	50.2	---	---	---	---
Anthracene-d10	1719-06-8	0.1	%	93.9	---	---	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	111	---	---	---	---
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	121	---	---	---	---
Toluene-D8	2037-26-5	0.1	%	113	---	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	110	---	---	---	---



Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

<i>Method: Compound</i>	<i>Client sample ID - Client sampling date / time</i>	<i>Analytical Results</i>
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples		
EA200: Description	BI_MW03_0.6 - 20-NOV-2013 15:00	Mid brown clay soil with some small brown and red rocks plus some vegetation.
EA200: Description	BL_MW05_0.1 - 20-NOV-2013 15:00	Mid brown clay soil with a trace of vegetation.
EA200: Description	BL_SB04_0.5 - 20-NOV-2013 15:00	Pale brown clay soil with some red rocks plus a trace of vegetation.
EA200: Description	BL_SB05_0.5 - 20-NOV-2013 15:00	Pale brown clay soil with some red rocks plus a trace of vegetation.
EA200: Description	BL_MW01_1.5 - 20-NOV-2013 15:00	Pale brown clay soil with some red rocks plus a trace of vegetation.
EA200: Description	BL_MW06_0.25 - 20-NOV-2013 15:00	Pale brown clay soil with some red rocks plus a trace of vegetation.
EA200: Description	BV_SB05_0.5 - 20-NOV-2013 15:00	Mid yellow - brown clay soil with grey rocks and quartz grains plus a trace of vegetation.



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	28.5	129
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: ES1325883	Page	: 1 of 29
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: PROJECT SYMPHONY	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 26-NOV-2013
C-O-C number	: ----	Issue Date	: 06-DEC-2013
Sampler	: S.M	No. of samples received	: 10
Order number	: 0224193	No. of samples analysed	: 10
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC



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WORLD RECOGNISED
ACCREDITATION

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shaun Spooner	Laboratory Technician	Newcastle - Asbestos



Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA002 : pH (Soils) (QC Lot: 3185860)									
ES1325574-011	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.2	6.3	0.0	0% - 20%
ES1325738-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	7.2	7.2	0.0	0% - 20%
EA032: Electrical Conductivity (saturated paste) (QC Lot: 3191306)									
ES1325879-002	Anonymous	EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	1940	1940	0.4	0% - 20%
ES1326079-011	Anonymous	EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	468	471	0.6	0% - 20%
EA055: Moisture Content (QC Lot: 3189043)									
ES1325880-007	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	20.7	20.6	0.7	0% - 20%
ES1325883-001	BI_MW03_0.6	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	18.8	19.7	4.7	0% - 50%
EA055: Moisture Content (QC Lot: 3189044)									
ES1325884-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	13.2	13.0	1.5	0% - 50%
ES1325885-007	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	23.7	21.8	8.5	0% - 20%
ED007: Exchangeable Cations (QC Lot: 3183542)									
ES1325880-005	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	7.2	7.2	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	7.6	7.7	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.3	0.3	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	15.3	15.4	0.0	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
ES1325882-003	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	4.8	4.7	2.9	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	10.4	10.2	1.8	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.3	0.2	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	3.2	3.0	4.5	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	18.7	18.2	2.6	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
ED040S: Soluble Major Anions (QC Lot: 3185864)									
ES1325882-002	Anonymous	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	230	200	14.5	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 3185867)									
ES1325784-001	Anonymous	ED045G: Chloride	16887-00-6	10	mg/kg	70	60	0.0	No Limit
ES1325883-001	BI_MW03_0.6	ED045G: Chloride	16887-00-6	10	mg/kg	160	160	0.0	0% - 50%
ED093S: Soluble Major Cations (QC Lot: 3185865)									
ES1325784-004	Anonymous	ED093S: Calcium	7440-70-2	10	mg/kg	780	800	2.0	0% - 20%
		ED093S: Magnesium	7439-95-4	10	mg/kg	30	30	0.0	No Limit
		ED093S: Sodium	7440-23-5	10	mg/kg	300	290	0.0	0% - 20%
		ED093S: Potassium	7440-09-7	10	mg/kg	170	170	0.0	0% - 50%



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005T: Total Metals by ICP-AES (QC Lot: 3190210)									
ES1325881-004	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	18	16	9.7	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	52	43	19.2	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	30	22	30.3	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	30	28	7.4	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	25	22	11.8	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	109	101	7.6	0% - 20%
ES1325883-005	BL_SB05_0.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	9	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	22	27	22.5	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	7	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	23	22	8.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	16	15	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	88	84	4.7	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3190211)									
ES1325881-004	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1325883-005	BL_SB05_0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3185564)									
ES1325879-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1325884-005	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3190624)									
ES1325880-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1325886-004	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3183219)									
ES1325880-001	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 3183219)									
ES1325880-001	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3183219)									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074C: Sulfonated Compounds (QC Lot: 3183219) - continued									
ES1325880-001	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3183219)									
ES1325880-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3183219)									
ES1325880-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
EP074F: Halogenated Aromatic Compounds (QC Lot: 3183219)									
ES1325880-001	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074F: Halogenated Aromatic Compounds (QC Lot: 3183219) - continued									
ES1325880-001	Anonymous	EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 3183219)									
ES1325880-001	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3183219)									
ES1325880-001	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3183221)									
ES1325880-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		ES1325881-003	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5
EP075(SIM): 2-Chlorophenol	95-57-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			1	mg/kg	<1	<1	0.0	No Limit
EP075(SIM): Pentachlorophenol	87-86-5			2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3183221)									
ES1325880-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3183221) - continued									
ES1325880-001	Anonymous	EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1325881-003	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3183218)									
ES1325880-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1325881-003	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3183220)										
ES1325880-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
ES1325881-003	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3189034)										
ES1325616-036	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1325966-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3183218)										
ES1325880-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1325881-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3183220)										
ES1325880-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1325881-003	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3189034)										
ES1325616-036	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1325966-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	13	<10	28.8	No Limit	
EP080: BTEXN (QC Lot: 3183218)										
ES1325880-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1325881-003	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			
EP080: BTEXN (QC Lot: 3189034)										
ES1325616-036	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 3189034) - continued									
ES1325616-036	Anonymous	EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1325966-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP231: Perfluorinated Compounds (QC Lot: 3188405)									
ES1325842-001	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
ES1325842-029	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
Sub-Matrix: WATER									
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 3187888)									
ES1325800-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.007	0.007	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.016	0.016	0.0	0% - 50%
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.012	0.011	0.0	0% - 50%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.007	0.006	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.073	0.072	0.0	0% - 50%
EW1303426-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0002	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.007	0.006	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.031	0.030	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3182952)									
EN1304334-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3186482)									



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3186482) - continued									
ES1325774-002	Anonymous	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP074: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES1325774-011	Anonymous	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP074: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 3186482)									
ES1325774-002	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES1325774-011	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3186482)									



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074C: Sulfonated Compounds (QC Lot: 3186482) - continued									
ES1325774-002	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1325774-011	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3186482)									
ES1325774-002	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1325774-011	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3186482)									
ES1325774-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3186482) - continued									
ES1325774-002	Anonymous	EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
ES1325774-011	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit		
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit		
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit		
EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit		
EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
EP074F: Halogenated Aromatic Compounds (QC Lot: 3186482)									
ES1325774-002	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP074F: Halogenated Aromatic Compounds (QC Lot: 3186482) - continued										
ES1325774-011	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit	
EP074G: Trihalomethanes (QC Lot: 3186482)										
ES1325774-002	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit	
ES1325774-011	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit	
EP074H: Naphthalene (QC Lot: 3186482)										
ES1325774-002	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit	
ES1325774-011	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3186483)										
ES1325774-002	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1325774-011	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3186483)										
ES1325774-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1325774-011	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
EP080: BTEXN (QC Lot: 3186483)										
ES1325774-002	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1325774-011	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							

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 Work Order : ES1325883
 Client : ENVIRO RESOURCES MANAGEMENT
 Project : PROJECT SYMPHONY



Sub-Matrix: **WATER**

Laboratory Duplicate (DUP) Report

<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>LOR</i>	<i>Unit</i>	<i>Original Result</i>	<i>Duplicate Result</i>	<i>RPD (%)</i>	<i>Recovery Limits (%)</i>
EP080: BTEXN (QC Lot: 3186483) - continued									
ES1325774-011	Anonymous	EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EA032: Electrical Conductivity (saturated paste) (QCLot: 3191306)									
EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	<1	1412 µS/cm	100	96	104	
ED007: Exchangeable Cations (QCLot: 3183542)									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED040S: Soluble Major Anions (QCLot: 3185864)									
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	150 mg/kg	98.3	84	112	
ED045G: Chloride by Discrete Analyser (QCLot: 3185867)									
ED045G: Chloride	16887-00-6	10	mg/kg	<10	5000 mg/kg	95.6	79	125	
ED093S: Soluble Major Cations (QCLot: 3185865)									
ED093S: Calcium	7440-70-2	10	mg/kg	<10	50 mg/kg	102	85	113	
ED093S: Magnesium	7439-95-4	10	mg/kg	<10	50 mg/kg	99.7	86	116	
ED093S: Sodium	7440-23-5	10	mg/kg	<10	50 mg/kg	104	80	112	
ED093S: Potassium	7440-09-7	10	mg/kg	<10	50 mg/kg	102	88	114	
EG005T: Total Metals by ICP-AES (QCLot: 3190210)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	110	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	107	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	106	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	110	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	108	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	115	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	112	81	133	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3190211)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	76.5	66	112	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3185564)									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	89.5	57.4	117	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3190624)									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	85.0	57.4	117	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3183219)									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	101	64	126	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3183219) - continued									
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	104	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	102	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	104	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	106	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	104	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	103	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	105	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	105	61	131	
EP074B: Oxygenated Compounds (QCLot: 3183219)									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	40.4	29.6	156	
				<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	121	58	136	
				<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	96.1	54	138	
				<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	102	54	136	
				<5	----	----	----	----	
EP074C: Sulfonated Compounds (QCLot: 3183219)									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	62.0	54	126	
EP074D: Fumigants (QCLot: 3183219)									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	83.2	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	101	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	94.5	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	81.8	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	91.5	66	126	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3183219)									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	46.3	30	148	
				<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	61.9	41	141	
				<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	84.4	43	147	
				<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	71.8	47	141	
				<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	82.4	49	143	
				<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	87.9	49	135	
				<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	90.5	54	126	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3183219) - continued									
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	80.5	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	93.3	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	99.3	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	101	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	84.5	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	103	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	91.6	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	107	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	100	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	98.8	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	104	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	102	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	102	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	84.5	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	93.7	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	97.7	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	93.5	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	104	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	93.1	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	68.9	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	103	48	136	
EP074F: Halogenated Aromatic Compounds (QCLot: 3183219)									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	103	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	100	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	103	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	103	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	104	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	103	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	102	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	97.7	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	105	60	132	
EP074G: Trihalomethanes (QCLot: 3183219)									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	96.7	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	86.8	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	87.9	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	92.8	60	126	
EP074H: Naphthalene (QCLot: 3183219)									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	98.6	63	133	
		5	mg/kg	<5	----	----	----	----	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 3183221)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	103	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	107	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	108	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	109	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	93.1	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	106	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	105	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	109	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	101	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	102	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	103	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	46.9	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3183221)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	107	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	110	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	112	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	116	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	112	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	111	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	114	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	115	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	111	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	111	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	111	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	101	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	112	76	122	
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	108	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	107	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	105	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3183218)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	86.0	68.4	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3183220)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	96.6	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	106	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	96.3	64	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3189034)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	91.6	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3183218)									



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3183218) - continued									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	86.6	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3183220)									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	97.8	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	105	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	82.8	63	131	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3189034)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	92.8	68.4	128	
EP080: BTEXN (QCLot: 3183218)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	87.4	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	87.1	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	86.7	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	89.5	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	90.4	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	87.9	62	138	
EP080: BTEXN (QCLot: 3189034)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	92.8	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	91.2	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	89.8	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	85.6	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	84.0	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	87.5	62	138	
EP231: Perfluorinated Compounds (QCLot: 3188405)									
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	75.2	54	146	
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	79.2	54	134	
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	115	56	138	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EG020T: Total Metals by ICP-MS (QCLot: 3187888)									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	92.3	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.3	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	102	83	115	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	106	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.6	85	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	106	83	117	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EG020T: Total Metals by ICP-MS (QCLot: 3187888) - continued									
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.3	76	118	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3182952)									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	98.1	77	115	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3186883)									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	96.7	61.6	107	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3186482)									
EP074: Benzene	71-43-2	1	µg/L	<1	10 µg/L	104	78	116	
EP074: Toluene	108-88-3	2	µg/L	<2	10 µg/L	106	68	128	
EP074: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	105	74	118	
EP074: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	20 µg/L	103	74	122	
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	110	74	118	
EP074: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	108	77	121	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	104	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	102	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	103	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	101	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	100	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	102	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	102	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	97.0	62	126	
EP074B: Oxygenated Compounds (QCLot: 3186482)									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	107	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	117	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	118	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	126	65	137	
EP074C: Sulfonated Compounds (QCLot: 3186482)									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	73.5	72.8	127	
EP074D: Fumigants (QCLot: 3186482)									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	75.4	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	102	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	94.5	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	92.4	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	99.1	69	117	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3186482)									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	87.5	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	98.5	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	82.6	69.4	129	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3186482) - continued									
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	85.6	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	97.5	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	90.2	65	131	
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	96.0	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	89.7	70.2	128	
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	97.1	71	119	
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	97.2	75	119	
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	102	77	117	
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	77.8	61	119	
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	98.3	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	78.4	63	121	
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	100	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	97.4	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	96.4	74	118	
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	112	75	123	
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	110	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	99.2	72	124	
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	81.0	66	114	
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	106	60	120	
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	105	70.6	128	
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	106	70	124	
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	108	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	88.3	71.8	126	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	87.9	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	80.2	58	132	
EP074F: Halogenated Aromatic Compounds (QCLot: 3186482)									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	102	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	104	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	101	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	101	71	121	
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	99.9	74	120	
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	100	72	120	
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	98.6	77	117	
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	88.6	60	126	
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	91.4	67	125	
EP074G: Trihalomethanes (QCLot: 3186482)									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	88.8	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	84.9	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	87.0	65	115	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP074G: Trihalomethanes (QCLot: 3186482) - continued									
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	87.8	73.5	126	
EP074H: Naphthalene (QCLot: 3186482)									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	97.9	61	125	
EP075(SIM)A: Phenolic Compounds (QCLot: 3186882)									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	51.0	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	98.4	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	62.2	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	60.6	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	87.6	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	74.4	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	69.2	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	83.1	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	75.0	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	72.9	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	64.2	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	56.5	8.7	95	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3186882)									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	69.4	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	72.4	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	73.3	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	69.2	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	89.3	62.6	116	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3186882) - continued									
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	91.4	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	64.2	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	83.6	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	64.4	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	89.6	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	82.7	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	98.6	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	85.4	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	87.8	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	92.7	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	85.8	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3186483)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	88.7	75	127	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3186881)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	65.7	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	86.9	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	83.9	62	120	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3186483)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	89.7	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3186881)									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	81.6	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	84.0	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	78.7	67	127	
EP080: BTEXN (QCLot: 3186483)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	99.9	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	97.4	65	129	



Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High
EP080: BTEXN (QCLot: 3186483) - continued								
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	96.0	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	96.2	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	99.8	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	101	70	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
ED045G: Chloride by Discrete Analyser (QCLot: 3185867)							
ES1325784-001	Anonymous	ED045G: Chloride	16887-00-6	1250 mg/kg	98.1	70	130
EG005T: Total Metals by ICP-AES (QCLot: 3190210)							
ES1325881-004	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	100	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	106	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	107	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	104	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	77.5	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	104	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3190211)							
ES1325881-004	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	86.7	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3185564)							
ES1325879-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	121	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3190624)							
ES1325880-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	82.0	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3183219)							
ES1325880-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	91.7	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	91.5	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3183219)							
ES1325880-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	94.9	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3183221)							
ES1325880-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	91.4	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	95.2	70	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 3183221) - continued								
ES1325880-001	Anonymous	EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	97.5	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	93.6	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	101	20	130	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3183221)								
ES1325880-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	101	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	109	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3183218)								
ES1325880-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	99.7	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3183220)								
ES1325880-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	80.1	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	83.2	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	69.0	52	132	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3189034)								
ES1325616-036	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	124	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3183218)								
ES1325880-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	96.8	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3183220)								
ES1325880-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	102	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	74.9	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	56.6	52	132	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3189034)								
ES1325616-036	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	120	70	130	
EP080: BTEXN (QCLot: 3183218)								
ES1325880-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	90.6	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	84.1	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	85.6	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	88.2	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	89.8	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	83.6	70	130			
EP080: BTEXN (QCLot: 3189034)								
ES1325616-036	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	98.5	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	104	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	99.4	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	102	70	130	
			106-42-3					



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 3189034) - continued							
ES1325616-036	Anonymous	EP080: ortho-Xylene	95-47-6	2.5 mg/kg	97.8	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	87.5	70	130
EP231: Perfluorinated Compounds (QCLot: 3188405)							
ES1325842-001	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	73.1	54	146
		EP231: PFOA	335-67-1	0.0025 mg/kg	77.3	54	134
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	90.9	56	138

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 3187888)							
ES1325800-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	108	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	95.8	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	99.5	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	104	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	100	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	84.3	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	96.5	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3182952)							
ES1325702-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	87.0	70	130
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3186482)							
ES1325774-002	Anonymous	EP074: Benzene	71-43-2	25 µg/L	124	70	130
		EP074: Toluene	108-88-3	25 µg/L	127	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3186482)							
ES1325774-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	119	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	118	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3186482)							
ES1325774-002	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	125	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3186483)							
ES1325774-002	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	109	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3186483)							
ES1325774-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	107	70	130
EP080: BTEXN (QCLot: 3186483)							
ES1325774-002	Anonymous	EP080: Benzene	71-43-2	25 µg/L	97.6	70	130
		EP080: Toluene	108-88-3	25 µg/L	95.9	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	99.7	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%) Low High
EP080: BTEXN (QCLot: 3186483) - continued							
ES1325774-002		Anonymous	EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	99.8	70 130
			EP080: ortho-Xylene	95-47-6	25 µg/L	103	70 130
			EP080: Naphthalene	91-20-3	25 µg/L	104	70 130

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	MSD	Recovery Limits (%) Low High	RPDs (%) Value	Control Limit
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3183218)										
ES1325880-001		Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	99.7	----	70 130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3183218)										
ES1325880-001		Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	96.8	----	70 130	----	----
EP080: BTEXN (QCLot: 3183218)										
ES1325880-001		Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	90.6	----	70 130	----	----
			EP080: Toluene	108-88-3	2.5 mg/kg	84.1	----	70 130	----	----
			EP080: Ethylbenzene	100-41-4	2.5 mg/kg	85.6	----	70 130	----	----
			EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	88.2	----	70 130	----	----
			EP080: ortho-Xylene	95-47-6	2.5 mg/kg	89.8	----	70 130	----	----
			EP080: Naphthalene	91-20-3	2.5 mg/kg	83.6	----	70 130	----	----
EP074E: Halogenated Aliphatic Compounds (QCLot: 3183219)										
ES1325880-001		Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	91.7	----	70 130	----	----
			EP074: Trichloroethene	79-01-6	2.5 mg/kg	91.5	----	70 130	----	----
EP074F: Halogenated Aromatic Compounds (QCLot: 3183219)										
ES1325880-001		Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	94.9	----	70 130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3183220)										
ES1325880-001		Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	80.1	----	73 137	----	----
			EP071: C15 - C28 Fraction	----	3140 mg/kg	83.2	----	53 131	----	----
			EP071: C29 - C36 Fraction	----	2860 mg/kg	69.0	----	52 132	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3183220)										
ES1325880-001		Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	102	----	73 137	----	----
			EP071: >C16 - C34 Fraction	----	4800 mg/kg	74.9	----	53 131	----	----
			EP071: >C34 - C40 Fraction	----	2400 mg/kg	56.6	----	52 132	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3183221)										



Sub-Matrix: SOIL					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number								
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3190211) - continued											
ES1325881-004	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	86.7	----	70	130	----	----	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3190624)											
ES1325880-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	82.0	----	70	130	----	----	

Sub-Matrix: WATER					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number								
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3182952)											
ES1325702-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	87.0	----	70	130	----	----	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3186482)											
ES1325774-002	Anonymous	EP074: Benzene	71-43-2	25 µg/L	124	----	70	130	----	----	
		EP074: Toluene	108-88-3	25 µg/L	127	----	70	130	----	----	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3186482)											
ES1325774-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	119	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	25 µg/L	118	----	70	130	----	----	
EP074F: Halogenated Aromatic Compounds (QCLot: 3186482)											
ES1325774-002	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	125	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3186483)											
ES1325774-002	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	109	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3186483)											
ES1325774-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	107	----	70	130	----	----	
EP080: BTEXN (QCLot: 3186483)											
ES1325774-002	Anonymous	EP080: Benzene	71-43-2	25 µg/L	97.6	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	95.9	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	99.7	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	99.8	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	103	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	104	----	70	130	----	----	
EG020T: Total Metals by ICP-MS (QCLot: 3187888)											
ES1325800-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	108	----	70	130	----	----	
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	95.8	----	70	130	----	----	
		EG020A-T: Chromium	7440-47-3	1 mg/L	99.5	----	70	130	----	----	
		EG020A-T: Copper	7440-50-8	1 mg/L	104	----	70	130	----	----	
		EG020A-T: Lead	7439-92-1	1 mg/L	100	----	70	130	----	----	
		EG020A-T: Nickel	7440-02-0	1 mg/L	84.3	----	70	130	----	----	
		EG020A-T: Zinc	7440-66-6	1 mg/L	96.5	----	70	130	----	----	

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1325883	Page	: 1 of 14
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: PROJECT SYMPHONY	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 26-NOV-2013
C-O-C number	: ----	Issue Date	: 06-DEC-2013
Sampler	: S.M	No. of samples received	: 10
Order number	: 0224193	No. of samples analysed	: 10
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002 : pH (Soils)							
Soil Glass Jar - Unpreserved (EA002) BI_MW03_0.6	20-NOV-2013	29-NOV-2013	27-NOV-2013	*	29-NOV-2013	29-NOV-2013	✓
EA032: Electrical Conductivity (saturated paste)							
Soil Glass Jar - Unpreserved (EA032) BI_MW03_0.6	20-NOV-2013	----	----	----	04-DEC-2013	19-MAY-2014	✓
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103) BI_MW03_0.6, BV_MW11_4.0, BL_MW05_0.1, BL_SB04_0.5, BL_SB05_0.5, BL_MW01_1.5, BL_MW06_0.25, BV_SB05_0.5	20-NOV-2013	----	----	----	02-DEC-2013	04-DEC-2013	✓
Soil Glass Jar - Unpreserved (EA055-103) BL_SB05_2.9	21-NOV-2013	----	----	----	02-DEC-2013	05-DEC-2013	✓
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples							
Snap Lock Bag (EA200) BI_MW03_0.6, BL_MW05_0.1, BL_SB04_0.5, BL_SB05_0.5, BL_MW01_1.5, BL_MW06_0.25, BV_SB05_0.5	20-NOV-2013	---	19-MAY-2014	----	06-DEC-2013	04-JUN-2014	✓
ED007: Exchangeable Cations							
Soil Glass Jar - Unpreserved (ED007) BI_MW03_0.6	20-NOV-2013	03-DEC-2013	18-DEC-2013	✓	03-DEC-2013	18-DEC-2013	✓
ED040S : Soluble Sulfate by ICPAES							
Soil Glass Jar - Unpreserved (ED040S) BI_MW03_0.6	20-NOV-2013	29-NOV-2013	18-DEC-2013	✓	29-NOV-2013	27-DEC-2013	✓
ED045G: Chloride Discrete analyser							
Soil Glass Jar - Unpreserved (ED045G) BI_MW03_0.6	20-NOV-2013	29-NOV-2013	18-DEC-2013	✓	29-NOV-2013	27-DEC-2013	✓
ED093S: Soluble Major Cations							
Soil Glass Jar - Unpreserved (ED093S) BI_MW03_0.6	20-NOV-2013	29-NOV-2013	19-MAY-2014	✓	29-NOV-2013	19-MAY-2014	✓



Matrix: SOIL

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) BI_MW03_0.6, BV_MW11_4.0, BL_MW05_0.1, BL_SB04_0.5, BL_SB05_0.5, BL_MW01_1.5, BL_MW06_0.25, BV_SB05_0.5	20-NOV-2013	03-DEC-2013	19-MAY-2014	✓	03-DEC-2013	19-MAY-2014	✓
Soil Glass Jar - Unpreserved (EG005T) BL_SB05_2.9	21-NOV-2013	03-DEC-2013	20-MAY-2014	✓	03-DEC-2013	20-MAY-2014	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) BI_MW03_0.6, BV_MW11_4.0, BL_MW05_0.1, BL_SB04_0.5, BL_SB05_0.5, BL_MW01_1.5, BL_MW06_0.25, BV_SB05_0.5	20-NOV-2013	03-DEC-2013	18-DEC-2013	✓	03-DEC-2013	18-DEC-2013	✓
Soil Glass Jar - Unpreserved (EG035T) BL_SB05_2.9	21-NOV-2013	03-DEC-2013	19-DEC-2013	✓	03-DEC-2013	19-DEC-2013	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) BV_MW11_4.0, BL_MW05_0.1, BL_MW01_1.5, BL_MW06_0.25	20-NOV-2013	02-DEC-2013	04-DEC-2013	✓	03-DEC-2013	11-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP066) BL_SB05_2.9	21-NOV-2013	03-DEC-2013	05-DEC-2013	✓	03-DEC-2013	12-JAN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Soil Glass Jar - Unpreserved (EP071) BI_MW03_0.6, BV_MW11_4.0, BV_SB05_0.5	20-NOV-2013	03-DEC-2013	04-DEC-2013	✓	04-DEC-2013	12-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP071) BL_SB05_2.9	21-NOV-2013	04-DEC-2013	05-DEC-2013	✓	04-DEC-2013	13-JAN-2014	✓
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074) BV_MW11_4.0	20-NOV-2013	29-NOV-2013	27-NOV-2013	*	01-DEC-2013	27-NOV-2013	*
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074) BV_MW11_4.0	20-NOV-2013	29-NOV-2013	27-NOV-2013	*	01-DEC-2013	27-NOV-2013	*
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074) BV_MW11_4.0	20-NOV-2013	29-NOV-2013	27-NOV-2013	*	01-DEC-2013	27-NOV-2013	*
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074) BV_MW11_4.0	20-NOV-2013	29-NOV-2013	27-NOV-2013	*	01-DEC-2013	27-NOV-2013	*
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074) BV_MW11_4.0	20-NOV-2013	29-NOV-2013	27-NOV-2013	*	01-DEC-2013	27-NOV-2013	*



Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074) BV_MW11_4.0	20-NOV-2013	29-NOV-2013	27-NOV-2013	*	01-DEC-2013	27-NOV-2013	*
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved (EP074) BV_MW11_4.0	20-NOV-2013	29-NOV-2013	27-NOV-2013	*	01-DEC-2013	27-NOV-2013	*
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074) BV_MW11_4.0	20-NOV-2013	29-NOV-2013	27-NOV-2013	*	01-DEC-2013	27-NOV-2013	*
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) BI_MW03_0.6, BV_MW11_4.0, BV_SB05_0.5	20-NOV-2013	03-DEC-2013	04-DEC-2013	✓	04-DEC-2013	12-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BL_SB05_2.9	21-NOV-2013	04-DEC-2013	05-DEC-2013	✓	04-DEC-2013	13-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) BI_MW03_0.6, BV_MW11_4.0, BV_SB05_0.5	20-NOV-2013	03-DEC-2013	04-DEC-2013	✓	04-DEC-2013	12-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BL_SB05_2.9	21-NOV-2013	04-DEC-2013	05-DEC-2013	✓	04-DEC-2013	13-JAN-2014	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) BI_MW03_0.6, BV_MW11_4.0, BV_SB05_0.5	20-NOV-2013	29-NOV-2013	04-DEC-2013	✓	01-DEC-2013	04-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) BL_SB05_2.9	21-NOV-2013	02-DEC-2013	05-DEC-2013	✓	02-DEC-2013	05-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Soil Glass Jar - Unpreserved (EP080) BI_MW03_0.6, BV_MW11_4.0, BV_SB05_0.5	20-NOV-2013	29-NOV-2013	04-DEC-2013	✓	01-DEC-2013	04-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) BL_SB05_2.9	21-NOV-2013	02-DEC-2013	05-DEC-2013	✓	02-DEC-2013	05-DEC-2013	✓
EP231: Perfluorinated Compounds							
Soil Glass Jar - Unpreserved (EP231) BL_SB05_2.9	21-NOV-2013	03-DEC-2013	20-MAY-2014	✓	04-DEC-2013	12-JAN-2014	✓

Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_201113_SM	20-NOV-2013	02-DEC-2013	19-MAY-2014	✓	02-DEC-2013	19-MAY-2014	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_201113_SM	20-NOV-2013	----	----	----	28-NOV-2013	18-DEC-2013	✓
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066) R01_201113_SM	20-NOV-2013	27-NOV-2013	27-NOV-2013	✓	03-DEC-2013	06-JAN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Amber Glass Bottle - Unpreserved (EP071) R01_201113_SM	20-NOV-2013	27-NOV-2013	27-NOV-2013	✓	02-DEC-2013	06-JAN-2014	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) R01_201113_SM	20-NOV-2013	29-NOV-2013	04-DEC-2013	✓	29-NOV-2013	04-DEC-2013	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) R01_201113_SM	20-NOV-2013	29-NOV-2013	04-DEC-2013	✓	29-NOV-2013	04-DEC-2013	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) R01_201113_SM	20-NOV-2013	29-NOV-2013	04-DEC-2013	✓	29-NOV-2013	04-DEC-2013	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) R01_201113_SM	20-NOV-2013	29-NOV-2013	04-DEC-2013	✓	29-NOV-2013	04-DEC-2013	✓
EP074H: Naphthalene							
Amber VOC Vial - Sulfuric Acid (EP074) R01_201113_SM	20-NOV-2013	29-NOV-2013	04-DEC-2013	✓	29-NOV-2013	04-DEC-2013	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) R01_201113_SM	20-NOV-2013	29-NOV-2013	04-DEC-2013	✓	29-NOV-2013	04-DEC-2013	✓
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) R01_201113_SM	20-NOV-2013	29-NOV-2013	04-DEC-2013	✓	29-NOV-2013	04-DEC-2013	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) R01_201113_SM	20-NOV-2013	29-NOV-2013	04-DEC-2013	✓	29-NOV-2013	04-DEC-2013	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_201113_SM	20-NOV-2013	27-NOV-2013	27-NOV-2013	✓	02-DEC-2013	06-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_201113_SM	20-NOV-2013	27-NOV-2013	27-NOV-2013	✓	02-DEC-2013	06-JAN-2014	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) R01_201113_SM	20-NOV-2013	29-NOV-2013	04-DEC-2013	✓	29-NOV-2013	04-DEC-2013	✓

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 Work Order : ES1325883
 Client : ENVIRO RESOURCES MANAGEMENT
 Project : PROJECT SYMPHONY



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Amber VOC Vial - Sulfuric Acid (EP080) R01_201113_SM	20-NOV-2013	29-NOV-2013	04-DEC-2013	✓	29-NOV-2013	04-DEC-2013	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Cations - soluble by ICP-AES	ED093S	1	10	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride Soluble By Discrete Analyser	ED045G	2	10	20.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Electrical Conductivity (Saturated Paste)	EA032	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	2	13	15.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Anions - Soluble	ED040S	1	7	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	4	35	11.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	14	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	15	13.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	33	12.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	7	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Cations - soluble by ICP-AES	ED093S	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride Soluble By Discrete Analyser	ED045G	2	10	20.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Electrical Conductivity (Saturated Paste)	EA032	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Anions - Soluble	ED040S	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	35	5.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	33	6.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Cations - soluble by ICP-AES	ED093S	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride Soluble By Discrete Analyser	ED045G	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Electrical Conductivity (Saturated Paste)	EA032	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Anions - Soluble	ED040S	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **SOIL** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Method Blanks (MB) - Continued							
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	35	5.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	33	6.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Chloride Soluble By Discrete Analyser	ED045G	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	35	5.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	33	6.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	1	9	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Method Blanks (MB) - Continued							
TPH Volatiles/BTEX	EP080	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	9	11.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Electrical Conductivity (Saturated Paste)	EA032	SOIL	USEPA 600/2 - 78 - 054 - conductivity determined on a saturated paste.
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Major Anions - Soluble	ED040S	SOIL	In-house. Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Chloride Soluble By Discrete Analyser	ED045G	SOIL	APHA 21st edition 4500-Cl- E. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm. Analysis is performed on a 1:5 soil / water leachate.
Cations - soluble by ICP-AES	ED093S	SOIL	APHA 21st ed., 3120; USEPA SW 846 - 6010 (ICPAES) Water extracts of the soil are analyzed for major cations by ICPAES. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)



Analytical Methods	Method	Matrix	Method Descriptions
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Polychlorinated Biphenyls (PCB)	EP066	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH ₄ Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.



Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na ₂ SO ₄ and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: SOIL

Method Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002 : pH (Soils)						
Soil Glass Jar - Unpreserved BI_MW03_0.6	29-NOV-2013	27-NOV-2013	2	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons						
Soil Glass Jar - Unpreserved BV_MW11_4.0	29-NOV-2013	27-NOV-2013	2	01-DEC-2013	27-NOV-2013	4
EP074B: Oxygenated Compounds						
Soil Glass Jar - Unpreserved BV_MW11_4.0	29-NOV-2013	27-NOV-2013	2	01-DEC-2013	27-NOV-2013	4
EP074C: Sulfonated Compounds						
Soil Glass Jar - Unpreserved BV_MW11_4.0	29-NOV-2013	27-NOV-2013	2	01-DEC-2013	27-NOV-2013	4
EP074D: Fumigants						
Soil Glass Jar - Unpreserved BV_MW11_4.0	29-NOV-2013	27-NOV-2013	2	01-DEC-2013	27-NOV-2013	4
EP074E: Halogenated Aliphatic Compounds						
Soil Glass Jar - Unpreserved BV_MW11_4.0	29-NOV-2013	27-NOV-2013	2	01-DEC-2013	27-NOV-2013	4
EP074F: Halogenated Aromatic Compounds						
Soil Glass Jar - Unpreserved BV_MW11_4.0	29-NOV-2013	27-NOV-2013	2	01-DEC-2013	27-NOV-2013	4



Matrix: **SOIL**

Method Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP074G: Trihalomethanes						
Soil Glass Jar - Unpreserved BV_MW11_4.0	29-NOV-2013	27-NOV-2013	2	01-DEC-2013	27-NOV-2013	4
EP074H: Naphthalene						
Soil Glass Jar - Unpreserved BV_MW11_4.0	29-NOV-2013	27-NOV-2013	2	01-DEC-2013	27-NOV-2013	4

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- **No Quality Control Sample Frequency Outliers exist.**

COPY 2/13



CHAIN OF CUSTODY

ALS Laboratory
 1000 North 10th Street, Suite 100
 Phoenix, AZ 85016
 Phone: (602) 955-8888
 Fax: (602) 955-8889
 Email: info@alslab.com

ALS Laboratory
 1000 North 10th Street, Suite 100
 Phoenix, AZ 85016
 Phone: (602) 955-8888
 Fax: (602) 955-8889
 Email: info@alslab.com

CLIENT: ERM
OFFICE: Sydney
PROJECT: Project Symptom
ORDER NUMBER: 0224193
PROJECT MANAGER: S.F.
SAMPLER: A. Morris
CONTACT PH: [blank]
SAMPLER MOBILE: 043418141
EDD FORMAT (for default): Som Gung
RELEASING BY: [Signature]
DATE/TIME: 20/11/13
COC emailed to ALS? (YES/NO): (NO)
Additional info: Email Reports to (will default to PM if no other addresses are listed); Email Invoiced to (will default to PM if no other addresses are listed);

FOR LABORATORY USE ONLY (Circle)
 Custody Seal Intact? Yes No
 Free Ice / Frozen Ice Intact upon receipt? Yes No
 Random Sample Temperature on Receipt: °C
 Other comment:
RECEIVED BY:
DATE/TIME:

TURNAROUND REQUIREMENTS: Standard TAT (List due date); Non Standard or urgent TAT (List due date);
ALS QUOTE NO.: SY79473
SITE: BAYSWATER / LIDDELL

ALS USE	SAMPLE DETAILS		CONTAINER INFORMATION		ANALYSIS REQUIRED INCLUDING SUITES (N/A, Suite Codes must be listed to attract suite price) Where Matrix not required, specify Total (unfiltered bottle required) or Dissolved (acid filtered bottle required).										Additional Information		
	MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes (below)	(refer to TOTAL CONTAINERS)	9-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Ni, Se, V, Zn, B)	S-24 TRHCs (C4)BTEX, PAH	Phenols	VOC Target Scan	PCB	pH (1:5)	Exchangeable Cations (ED007)	FOS/PROA		Asbestos (absence/presence)	Particle Sizing to 75um (Sieve)
1	BV-SB04-2.0	19-11-13	soil		1	X		X	X	X							HOLD
11	BV-SB04-4.0				1	X		X	X	X							HOLD
2	BV-MW03-2.5				1	X		X	X	X							HOLD
3	BV-MW03-3.7				1	X		X	X	X							HOLD
4	BV-MW05-2.0				1	X		X	X	X							HOLD
5	BV-MW05-3.0				1	X		X	X	X							HOLD
6	BV-MW04-2.0				1	X		X	X	X							HOLD
7	BV-MW04-3.0				1	X		X	X	X							HOLD
8	BV-MW06-4.0				1	X		X	X	X							HOLD
9	ROI-19-11-13-AM				1	X		X	X	X							HOLD

Environmental Division
Sydney
Work Order
ES1325884

Telephone: +61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; W = Water Preserved Plastic; ORC = Nitric Preserved Glass; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Amber Glass Preserved; V = VOA Vol HCl Preserved; VH = VOA Vol Sulphuric Preserved; VS = VOA Vol Sulphuric Preserved; AV = Air/Knight Unpreserved Vol; SG = Sulphur Preserved; Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation bottle; BP = Sulphur Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Stable Bottle; ASS = Plastic Bin for Acid Sulphate Salt; B = Unpreserved Bin.

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1325884	
Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800	E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555
Project : PROJECT SYMPHONY Order number : 0224193 C-O-C number : ---- Site : BAYSWATR/LIDDELL Sampler : A.M	Page : 1 of 3 Quote number : ES2013ENVRES0369 (SY/794/13) QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 26-NOV-2013 Client Requested Due Date : 04-DEC-2013	Issue Date : 27-NOV-2013 20:01 Scheduled Reporting Date : 04-DEC-2013
--	--

Delivery Details

Mode of Delivery : Carrier No. of coolers/boxes : 7 HARD Security Seal : Intact.	Temperature : 4.8°C - Ice present No. of samples received : 12 No. of samples analysed : 6
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General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- Insufficient time received for analysis of some analytes within 'analytical holding times'. Samples should be submitted with at least half the holding time remaining to minimize the possibility of holding time breaches.
- **Samples received in appropriately pretreated and preserved containers.**
- **Breaches in recommended extraction / analysis holding times may occur. Please refer to the 'Proactive Holding Time Report' below for further details. Please contact ALS if further information is required.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EP066 (solids) Polychlorinated Biphenyls by GC/MS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - S-27 TRH/BTEXN/PAH/Phenols&Metals
ES1325884-001	19-NOV-2013 15:00	BV_SB04_2.0		✓	✓	✓
ES1325884-002	19-NOV-2013 15:00	BV_MW03_2.5		✓	✓	✓
ES1325884-003	19-NOV-2013 15:00	BV_MW05_3.0		✓	✓	✓
ES1325884-004	19-NOV-2013 15:00	BV_MW04_2.0		✓	✓	✓
ES1325884-005	19-NOV-2013 15:00	BV_MW06_2.0		✓	✓	✓
ES1325884-007	19-NOV-2013 15:00	BV_SB04_4.0	✓			
ES1325884-008	19-NOV-2013 15:00	BV_MW03_3.7	✓			
ES1325884-009	19-NOV-2013 15:00	BV_MW05_2.0	✓			
ES1325884-010	19-NOV-2013 15:00	BV_MW05_3.8	✓			
ES1325884-011	19-NOV-2013 15:00	BV_MW04_3.0	✓			
ES1325884-012	19-NOV-2013 15:00	BV_MW06_4.0	✓			

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP066-PCB-WA Polychlorinated Biphenyls (PCB)	WATER - EP074 (water) Volatile Organic Compounds	WATER - W-27T TRH/BTEXN/PAH/Phenols/Total 8 Metals
ES1325884-006	19-NOV-2013 15:00	R01_19-11-13_AM	✓	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



Requested Deliverables

JOHN EWING

- | | | |
|--|-------|--------------------|
| - *AU Certificate of Analysis - NATA (COA) | Email | john.ewing@erm.com |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) | Email | john.ewing@erm.com |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) | Email | john.ewing@erm.com |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN | Email | john.ewing@erm.com |
| - A4 - AU Tax Invoice (INV) | Email | john.ewing@erm.com |
| - Chain of Custody (CoC) (COC) | Email | john.ewing@erm.com |
| - EDI Format - ENMRG (ENMRG) | Email | john.ewing@erm.com |
| - EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM) | Email | john.ewing@erm.com |
| - EDI Format - ESDAT (ESDAT) | Email | john.ewing@erm.com |
| - EDI Format - XTab (XTAB) | Email | john.ewing@erm.com |

THE ACCOUNTS PAYABLE

- | | | |
|-------------------------------|-------|---------------------|
| - A4 - AU Tax Invoice (INV) | Email | au.accounts@erm.com |
|-------------------------------|-------|---------------------|

CERTIFICATE OF ANALYSIS

Work Order : ES1325884 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : PROJECT SYMPHONY Order number : 0224193 C-O-C number : ---- Sampler : A.M Site : BAYSWATR/LIDDELL Quote number : SY/794/13	Page : 1 of 13 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 26-NOV-2013 Issue Date : 04-DEC-2013 No. of samples received : 12 No. of samples analysed : 6
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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BV_SB04_2.0	BV_MW03_2.5	BV_MW05_3.0	BV_MW04_2.0	BV_MW06_2.0
				19-NOV-2013 15:00	19-NOV-2013 15:00	19-NOV-2013 15:00	19-NOV-2013 15:00	19-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1325884-001	ES1325884-002	ES1325884-003	ES1325884-004	ES1325884-005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	13.2	17.4	19.8	16.0	14.8
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	11	9	11	16	11
Cadmium	7440-43-9	1	mg/kg	1	<1	1	1	1
Chromium	7440-47-3	2	mg/kg	15	12	19	13	14
Copper	7440-50-8	5	mg/kg	29	10	6	24	22
Lead	7439-92-1	5	mg/kg	14	12	11	17	16
Nickel	7440-02-0	2	mg/kg	23	8	4	35	25
Zinc	7440-66-6	5	mg/kg	70	24	16	102	122
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	<5	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	<5	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	<5	<5	<5
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BV_SB04_2.0	BV_MW03_2.5	BV_MW05_3.0	BV_MW04_2.0	BV_MW06_2.0
				19-NOV-2013 15:00	19-NOV-2013 15:00	19-NOV-2013 15:00	19-NOV-2013 15:00	19-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1325884-001	ES1325884-002	ES1325884-003	ES1325884-004	ES1325884-005
EP074D: Fumigants - Continued								
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	<5	<5	<5
Chloromethane	74-87-3	5	mg/kg	<5	<5	<5	<5	<5
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	<5	<5	<5
Bromomethane	74-83-9	5	mg/kg	<5	<5	<5	<5	<5
Chloroethane	75-00-3	5	mg/kg	<5	<5	<5	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	<5	<5	<5
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				BV_SB04_2.0	BV_MW03_2.5	BV_MW05_3.0	BV_MW04_2.0	BV_MW06_2.0
				19-NOV-2013 15:00	19-NOV-2013 15:00	19-NOV-2013 15:00	19-NOV-2013 15:00	19-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1325884-001	ES1325884-002	ES1325884-003	ES1325884-004	ES1325884-005
EP074F: Halogenated Aromatic Compounds - Continued								
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP074H: Naphthalene								
Naphthalene	91-20-3	5	mg/kg	<5	<5	<5	<5	<5
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BV_SB04_2.0	BV_MW03_2.5	BV_MW05_3.0	BV_MW04_2.0	BV_MW06_2.0
				19-NOV-2013 15:00	19-NOV-2013 15:00	19-NOV-2013 15:00	19-NOV-2013 15:00	19-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1325884-001	ES1325884-002	ES1325884-003	ES1325884-004	ES1325884-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BV_SB04_2.0	BV_MW03_2.5	BV_MW05_3.0	BV_MW04_2.0	BV_MW06_2.0
				19-NOV-2013 15:00	19-NOV-2013 15:00	19-NOV-2013 15:00	19-NOV-2013 15:00	19-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1325884-001	ES1325884-002	ES1325884-003	ES1325884-004	ES1325884-005
EP080: BTEXN - Continued								
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	105	101	122	104	103
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	97.2	95.4	83.8	93.2	97.0
Toluene-D8	2037-26-5	0.1	%	103	99.2	93.2	98.4	97.4
4-Bromofluorobenzene	460-00-4	0.1	%	96.5	90.3	87.9	91.1	88.3
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	89.8	89.8	89.4	95.6	93.2
2-Chlorophenol-D4	93951-73-6	0.1	%	98.7	96.8	97.2	104	102
2,4,6-Tribromophenol	118-79-6	0.1	%	90.9	106	104	102	99.7
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	104	103	101	110	108
Anthracene-d10	1719-06-8	0.1	%	91.9	91.4	90.2	97.6	96.2
4-Terphenyl-d14	1718-51-0	0.1	%	90.0	89.8	90.4	96.7	93.6
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	97.5	96.2	83.4	94.1	96.8
Toluene-D8	2037-26-5	0.1	%	102	98.5	92.1	97.4	93.4
4-Bromofluorobenzene	460-00-4	0.1	%	98.3	93.3	90.6	94.1	88.5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_19-11-13_AM

Client sampling date / time

19-NOV-2013 15:00

ES1325884-006

Compound	CAS Number	LOR	Unit					
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	1	µg/L	<1	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	----	----	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	----	----	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	----	----	----	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	----	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	----	----	----	----
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	----	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	----	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	----	----	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	----	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	----	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	----	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	----	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	----	----	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	----	----	----	----
1,2-Dichloropropane	78-87-5	5	µg/L	<5	----	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	----	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_19-11-13_AM

Client sampling date / time

19-NOV-2013 15:00

ES1325884-006

Compound	CAS Number	LOR	Unit					
EP074D: Fumigants - Continued								
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	---	---	---	---
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	---	---	---	---
Chloromethane	74-87-3	50	µg/L	<50	---	---	---	---
Vinyl chloride	75-01-4	50	µg/L	<50	---	---	---	---
Bromomethane	74-83-9	50	µg/L	<50	---	---	---	---
Chloroethane	75-00-3	50	µg/L	<50	---	---	---	---
Trichlorofluoromethane	75-69-4	50	µg/L	<50	---	---	---	---
1,1-Dichloroethene	75-35-4	5	µg/L	<5	---	---	---	---
Iodomethane	74-88-4	5	µg/L	<5	---	---	---	---
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	---	---	---	---
1,1-Dichloroethane	75-34-3	5	µg/L	<5	---	---	---	---
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	---	---	---	---
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	---	---	---	---
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	---	---	---	---
Carbon Tetrachloride	56-23-5	5	µg/L	<5	---	---	---	---
1,2-Dichloroethane	107-06-2	5	µg/L	<5	---	---	---	---
Trichloroethene	79-01-6	5	µg/L	<5	---	---	---	---
Dibromomethane	74-95-3	5	µg/L	<5	---	---	---	---
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	---	---	---	---
1,3-Dichloropropane	142-28-9	5	µg/L	<5	---	---	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	---	---	---	---
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	---	---	---	---
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	---	---	---	---
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	---	---	---	---
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	---	---	---	---
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	---	---	---	---
Pentachloroethane	76-01-7	5	µg/L	<5	---	---	---	---
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	---	---	---	---
Hexachlorobutadiene	87-68-3	5	µg/L	<5	---	---	---	---
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	---	---	---	---
Bromobenzene	108-86-1	5	µg/L	<5	---	---	---	---
2-Chlorotoluene	95-49-8	5	µg/L	<5	---	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_19-11-13_AM

Client sampling date / time

19-NOV-2013 15:00

Compound	CAS Number	LOR	Unit	ES1325884-006	---	---	---	---
EP074F: Halogenated Aromatic Compounds - Continued								
4-Chlorotoluene	106-43-4	5	µg/L	<5	---	---	---	---
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	---	---	---	---
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	---	---	---	---
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	---	---	---	---
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	---	---	---	---
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	---	---	---	---
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	---	---	---	---
Bromodichloromethane	75-27-4	5	µg/L	<5	---	---	---	---
Dibromochloromethane	124-48-1	5	µg/L	<5	---	---	---	---
Bromoform	75-25-2	5	µg/L	<5	---	---	---	---
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	---	---	---	---
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_19-11-13_AM	---	---	---	---
19-NOV-2013 15:00	---	---	---	---
ES1325884-006	---	---	---	---

Client sampling date / time

Compound	CAS Number	LOR	Unit				
----------	------------	-----	------	--	--	--	--

EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---

EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---

EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	---	---	---

EP080: BTEXN

Benzene	71-43-2	1	µg/L	<1	---	---	---
Toluene	108-88-3	2	µg/L	<2	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_19-11-13_AM

Client sampling date / time

19-NOV-2013 15:00

Compound	CAS Number	LOR	Unit	ES1325884-006	----	----	----	----
EP080: BTEXN - Continued								
^ Total Xylenes	1330-20-7	2	µg/L	<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	79.1	----	----	----	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	107	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	116	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	101	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	20.7	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	36.2	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	76.5	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	28.6	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	111	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	117	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	108	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	115	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	107	----	----	----	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	28.5	129
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: ES1325884	Page	: 1 of 25
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: PROJECT SYMPHONY	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATR/LIDDELL	Date Samples Received	: 26-NOV-2013
C-O-C number	: ----	Issue Date	: 04-DEC-2013
Sampler	: A.M	No. of samples received	: 12
Order number	: 0224193	No. of samples analysed	: 6
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited
Laboratory 825

Accredited for
compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC



Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA055: Moisture Content (QC Lot: 3189044)									
ES1325884-001	BV_SB04_2.0	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	13.2	13.0	1.5	0% - 50%
ES1325885-007	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	23.7	21.8	8.5	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 3186205)									
ES1325762-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	7	10	36.5	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	33	38	15.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	9	11	20.1	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	15	15	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	1700	1980	15.4	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	253	226	11.6	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	6020	6030	0.2	0% - 20%
ES1325780-006	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	3	2	57.8	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	22	15	38.7	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	10	9	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	16	8	70.7	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	25	27	7.4	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	55	52	5.0	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	135	140	3.7	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3186206)									
ES1325762-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.1	0.2	0.0	No Limit
ES1325780-006	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3185564)									
ES1325879-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1325884-005	BV_MW06_2.0	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3183201)									
ES1325882-005	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074B: Oxygenated Compounds (QC Lot: 3183201)							
ES1325882-005	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074B: Oxygenated Compounds (QC Lot: 3183201) - continued									
ES1325882-005	Anonymous	EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3183201)									
ES1325882-005	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3183201)									
ES1325882-005	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3183201)									
ES1325882-005	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074F: Halogenated Aromatic Compounds (QC Lot: 3183201)									
ES1325882-005	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 3183201)									
ES1325882-005	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3183201)									
ES1325882-005	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3183195)									
ES1325882-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		ES1325885-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5
EP075(SIM): 2-Chlorophenol	95-57-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3183195) - continued									
ES1325885-001	Anonymous	EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3183195)									
ES1325882-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1325885-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3183194)										
ES1325882-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
ES1325885-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3183200)										
ES1325882-005	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1325885-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3183194)										
ES1325882-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1325885-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3183200)										
ES1325882-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1325885-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
EP080: BTEXN (QC Lot: 3183200)										
ES1325882-005	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1325885-001	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			
Sub-Matrix: WATER										
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EG020T: Total Metals by ICP-MS (QC Lot: 3187888)										
ES1325800-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.007	0.007	0.0	No Limit	



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
EG020T: Total Metals by ICP-MS (QC Lot: 3187888) - continued											
ES1325800-001	Anonymous	EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.016	0.016	0.0	0% - 50%		
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.012	0.011	0.0	0% - 50%		
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit		
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.007	0.006	0.0	No Limit		
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.073	0.072	0.0	0% - 50%		
EW1303426-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0002	0.0	No Limit		
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.007	0.006	0.0	No Limit		
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit		
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit		
EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.031	0.030	0.0	No Limit				
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3182952)											
EN1304334-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3186485)											
ES1325733-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit		
ES1325855-002	Anonymous	EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit		
EP074B: Oxygenated Compounds (QC Lot: 3186485)	Anonymous	EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit		
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit		
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit		
		ES1325855-002	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
				EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074B: Oxygenated Compounds (QC Lot: 3186485) - continued									
ES1325855-002	Anonymous	EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3186485)									
ES1325733-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1325855-002	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3186485)									
ES1325733-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1325855-002	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3186485)									
ES1325733-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3186485) - continued									
ES1325733-001	Anonymous	EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
ES1325855-002	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	10	11	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
EP074F: Halogenated Aromatic Compounds (QC Lot: 3186485)									
ES1325733-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP074F: Halogenated Aromatic Compounds (QC Lot: 3186485) - continued										
ES1325733-001	Anonymous	EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit	
ES1325855-002	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit	
EP074G: Trihalomethanes (QC Lot: 3186485)										
ES1325733-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit	
ES1325855-002	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit	
EP074H: Naphthalene (QC Lot: 3186485)										
ES1325733-001	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit	
ES1325855-002	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3186486)										
ES1325733-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1325855-002	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3186486)										
ES1325733-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1325855-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
EP080: BTEXN (QC Lot: 3186486)										
ES1325733-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1325855-002	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	

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 Work Order : ES1325884
 Client : ENVIRO RESOURCES MANAGEMENT
 Project : PROJECT SYMPHONY



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP080: BTEXN (QC Lot: 3186486) - continued										
ES1325855-002	Anonymous	EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EG005T: Total Metals by ICP-AES (QCLot: 3186205)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	116	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	112	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	111	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	109	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	105	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	113	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	106	81	133	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3186206)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	77.8	66	112	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3185564)									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	89.5	57.4	117	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3183201)									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	102	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	111	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	118	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	116	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	121	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	117	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	118	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	116	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	114	61	131	
EP074B: Oxygenated Compounds (QCLot: 3183201)									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	100	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	109	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	102	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	104	54	136	
		5	mg/kg	<5	----	----	----	----	
EP074C: Sulfonated Compounds (QCLot: 3183201)									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	92.2	54	126	
EP074D: Fumigants (QCLot: 3183201)									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	107	55	133	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074D: Fumigants (QCLot: 3183201) - continued									
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	117	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	94.0	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	92.4	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	107	66	126	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3183201)									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	90.9	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	104	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	105	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	101	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	104	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	106	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	105	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	103	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	109	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	112	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	109	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	102	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	103	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	92.5	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	115	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	118	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	101	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	119	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	115	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	113	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	99.2	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	107	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	106	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	97.2	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	116	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	90.8	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	89.9	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	125	48	136	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074F: Halogenated Aromatic Compounds (QCLot: 3183201)									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	114	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	118	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	122	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	122	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	120	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	123	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	119	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	119	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	118	60	132	
EP074G: Trihalomethanes (QCLot: 3183201)									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	110	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	93.2	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	85.4	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	96.8	60	126	
EP074H: Naphthalene (QCLot: 3183201)									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	123	63	133	
		5	mg/kg	<5	----	----	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3183195)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	99.0	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	101	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	104	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	106	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	88.6	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	90.9	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	98.7	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	102	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	93.9	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	94.4	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	96.9	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	16.8	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3183195)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	102	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	112	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	111	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	113	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	113	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	111	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	113	79	123	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3183195) - continued									
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	113	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	104	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	106	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	99.0	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	112	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	102	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	98.7	71	113	
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	98.6	71.7	113	
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	97.4	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3183194)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	85.8	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	95.8	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	96.5	64	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3183200)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	104	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3183194)									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	87.6	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	99.1	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	84.2	63	131	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3183200)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	106	68.4	128	
EP080: BTEXN (QCLot: 3183200)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	99.1	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	105	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	105	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	102	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	102	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	101	62	138	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EG020T: Total Metals by ICP-MS (QCLot: 3187888)									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	92.3	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.3	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	102	83	115	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	106	83	117	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EG020T: Total Metals by ICP-MS (QCLot: 3187888) - continued									
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.6	85	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	106	83	117	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.3	76	118	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3182952)									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	98.1	77	115	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3186883)									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	96.7	61.6	107	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3186485)									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	92.9	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	96.4	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	100	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	98.0	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	104	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	100	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	101	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	100	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	91.9	62	126	
EP074B: Oxygenated Compounds (QCLot: 3186485)									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	83.6	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	96.2	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	91.5	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	95.8	65	137	
EP074C: Sulfonated Compounds (QCLot: 3186485)									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	83.7	72.8	127	
EP074D: Fumigants (QCLot: 3186485)									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	87.4	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	102	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	82.4	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	78.1	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	87.7	69	117	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3186485)									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	78.6	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	96.0	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	95.9	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	106	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	118	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	99.4	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	100	69	123	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3186485) - continued									
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	86.8	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	95.8	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	103	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	102	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	91.6	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	96.4	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	84.7	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	101	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	94.7	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	103	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	96.3	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	108	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	95.4	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	88.5	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	89.6	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	78.5	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	99.1	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	109	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	84.7	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	92.3	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	103	58	132	
EP074F: Halogenated Aromatic Compounds (QCLot: 3186485)									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	106	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	98.6	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	105	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	103	71	121	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	109	74	120	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	103	72	120	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	106	77	117	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	89.9	60	126	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	102	67	125	
EP074G: Trihalomethanes (QCLot: 3186485)									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	100	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	82.9	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	89.2	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	85.2	73.5	126	
EP074H: Naphthalene (QCLot: 3186485)									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	81.9	61	125	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 3186882)									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	51.0	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	98.4	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	62.2	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	60.6	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	87.6	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	74.4	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	69.2	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	83.1	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	75.0	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	72.9	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	64.2	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	56.5	8.7	95	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3186882)									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	69.4	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	72.4	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	73.3	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	69.2	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	89.3	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	91.4	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	64.2	63.6	118	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3186882) - continued									
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	83.6	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	64.4	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	89.6	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	82.7	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	98.6	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	85.4	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	87.8	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	92.7	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	85.8	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3186486)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	114	75	127	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3186881)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	65.7	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	86.9	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	83.9	62	120	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3186486)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	112	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3186881)									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	81.6	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	84.0	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	78.7	67	127	
EP080: BTEXN (QCLot: 3186486)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	119	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	122	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	106	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	104	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	108	72	122	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)		
						LCS	Low	High
EP080: BTEXN (QCLot: 3186486) - continued								
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	106	70	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
EG005T: Total Metals by ICP-AES (QCLot: 3186205)							
ES1325762-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	107	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	114	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	# Not Determined	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	80.5	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	106	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	# Not Determined	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3186206)							
ES1325762-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	90.0	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3185564)							
ES1325879-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	121	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3183201)							
ES1325882-005	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	107	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	96.3	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3183201)							
ES1325882-005	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	108	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3183195)							
ES1325882-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	83.1	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	86.5	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	81.8	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	82.2	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	46.3	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3183195)							
ES1325882-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	90.6	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	95.4	70	130



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3183194)								
ES1325882-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	78.2	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	80.6	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	72.9	52	132	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3183200)								
ES1325882-005	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	85.8	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3183194)								
ES1325882-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	100	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.3	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	58.4	52	132	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3183200)								
ES1325882-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	87.3	70	130	
EP080: BTEXN (QCLot: 3183200)								
ES1325882-005	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	79.8	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	86.5	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	87.7	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	84.4	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	86.2	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	86.7	70	130			

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 3187888)							
ES1325800-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	108	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	95.8	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	99.5	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	104	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	100	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	84.3	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	96.5	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3182952)							
ES1325702-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	87.0	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3186485)							
ES1325733-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	121	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	104	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3186485)							



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP074F: Halogenated Aromatic Compounds (QCLot: 3186485) - continued								
ES1325733-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	119	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3186486)								
ES1325733-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	103	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3186486)								
ES1325733-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	102	70	130	
EP080: BTEXN (QCLot: 3186486)								
ES1325733-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	99.8	70	130	
		EP080: Toluene	108-88-3	25 µg/L	108	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	105	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	98.9	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	108	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	103	70	130		

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3183194)										
ES1325882-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	78.2	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	80.6	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	72.9	----	52	132	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3183194)										
ES1325882-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	100	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.3	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	58.4	----	52	132	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3183195)										
ES1325882-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	83.1	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	86.5	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	81.8	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	82.2	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	46.3	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3183195)										
ES1325882-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	90.6	----	70	130	----	----



Sub-Matrix: SOIL					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number								
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3183195) - continued											
ES1325882-001	Anonymous	EP075(SIM): Pyrene	129-00-0	10 mg/kg	95.4	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3183200)											
ES1325882-005	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	85.8	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3183200)											
ES1325882-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	87.3	----	70	130	----	----	
EP080: BTEXN (QCLot: 3183200)											
ES1325882-005	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	79.8	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	86.5	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	87.7	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	84.4	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	86.2	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	86.7	----	70	130	----	----	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3183201)											
ES1325882-005	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	107	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	96.3	----	70	130	----	----	
EP074F: Halogenated Aromatic Compounds (QCLot: 3183201)											
ES1325882-005	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	108	----	70	130	----	----	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3185564)											
ES1325879-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	121	----	70	130	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3186205)											
ES1325762-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	107	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	114	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	# Not Determined	----	70	130	----	----	
		EG005T: Lead	7439-92-1	125 mg/kg	80.5	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	106	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	125 mg/kg	# Not Determined	----	70	130	----	----	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3186206)											
ES1325762-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	90.0	----	70	130	----	----	

Sub-Matrix: WATER					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number								
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3182952)											
ES1325702-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	87.0	----	70	130	----	----	



Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP074E: Halogenated Aliphatic Compounds (QCLot: 3186485)										
ES1325733-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	121	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	25 µg/L	104	----	70	130	----	----
EP074F: Halogenated Aromatic Compounds (QCLot: 3186485)										
ES1325733-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	119	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3186486)										
ES1325733-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	103	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3186486)										
ES1325733-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	102	----	70	130	----	----
EP080: BTEXN (QCLot: 3186486)										
ES1325733-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	99.8	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	108	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	105	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	98.9	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	25 µg/L	108	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	103	----	70	130	----	----
EG020T: Total Metals by ICP-MS (QCLot: 3187888)										
ES1325800-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	108	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	95.8	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	99.5	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	104	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	100	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	84.3	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	96.5	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1325884	Page	: 1 of 11
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: PROJECT SYMPHONY	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATR/LIDDELL	Date Samples Received	: 26-NOV-2013
C-O-C number	: ----	Issue Date	: 04-DEC-2013
Sampler	: A.M	No. of samples received	: 12
Order number	: 0224193	No. of samples analysed	: 6
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA055: Moisture Content								
Soil Glass Jar - Unpreserved (EA055-103) BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0	BV_MW03_2.5, BV_MW04_2.0	19-NOV-2013	----	----	----	02-DEC-2013	03-DEC-2013	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T) BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0	BV_MW03_2.5, BV_MW04_2.0	19-NOV-2013	29-NOV-2013	18-MAY-2014	✓	30-NOV-2013	18-MAY-2014	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T) BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0	BV_MW03_2.5, BV_MW04_2.0	19-NOV-2013	29-NOV-2013	17-DEC-2013	✓	30-NOV-2013	17-DEC-2013	✓
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066) BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0	BV_MW03_2.5, BV_MW04_2.0	19-NOV-2013	02-DEC-2013	03-DEC-2013	✓	03-DEC-2013	11-JAN-2014	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP071) BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0	BV_MW03_2.5, BV_MW04_2.0	19-NOV-2013	03-DEC-2013	03-DEC-2013	✓	03-DEC-2013	12-JAN-2014	✓
EP074D: Fumigants								
Soil Glass Jar - Unpreserved (EP074) BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0	BV_MW03_2.5, BV_MW04_2.0	19-NOV-2013	29-NOV-2013	26-NOV-2013	*	02-DEC-2013	26-NOV-2013	*



Matrix: **SOIL**

Evaluation: ✘ = Holding time breach ; ✔ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP074E: Halogenated Aliphatic Compounds								
Soil Glass Jar - Unpreserved (EP074) BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0	BV_MW03_2.5, BV_MW04_2.0	19-NOV-2013	29-NOV-2013	26-NOV-2013	✘	02-DEC-2013	26-NOV-2013	✘
EP074F: Halogenated Aromatic Compounds								
Soil Glass Jar - Unpreserved (EP074) BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0	BV_MW03_2.5, BV_MW04_2.0	19-NOV-2013	29-NOV-2013	26-NOV-2013	✘	02-DEC-2013	26-NOV-2013	✘
EP074A: Monocyclic Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP074) BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0	BV_MW03_2.5, BV_MW04_2.0	19-NOV-2013	29-NOV-2013	26-NOV-2013	✘	02-DEC-2013	26-NOV-2013	✘
EP074H: Naphthalene								
Soil Glass Jar - Unpreserved (EP074) BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0	BV_MW03_2.5, BV_MW04_2.0	19-NOV-2013	29-NOV-2013	26-NOV-2013	✘	02-DEC-2013	26-NOV-2013	✘
EP074B: Oxygenated Compounds								
Soil Glass Jar - Unpreserved (EP074) BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0	BV_MW03_2.5, BV_MW04_2.0	19-NOV-2013	29-NOV-2013	26-NOV-2013	✘	02-DEC-2013	26-NOV-2013	✘
EP074C: Sulfonated Compounds								
Soil Glass Jar - Unpreserved (EP074) BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0	BV_MW03_2.5, BV_MW04_2.0	19-NOV-2013	29-NOV-2013	26-NOV-2013	✘	02-DEC-2013	26-NOV-2013	✘
EP074G: Trihalomethanes								
Soil Glass Jar - Unpreserved (EP074) BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0	BV_MW03_2.5, BV_MW04_2.0	19-NOV-2013	29-NOV-2013	26-NOV-2013	✘	02-DEC-2013	26-NOV-2013	✘
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM)) BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0	BV_MW03_2.5, BV_MW04_2.0	19-NOV-2013	03-DEC-2013	03-DEC-2013	✔	03-DEC-2013	12-JAN-2014	✔



Matrix: **SOIL** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0	BV_MW03_2.5, BV_MW04_2.0	19-NOV-2013	03-DEC-2013	03-DEC-2013	✓	03-DEC-2013	12-JAN-2014	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0	BV_MW03_2.5, BV_MW04_2.0	19-NOV-2013	29-NOV-2013	03-DEC-2013	✓	02-DEC-2013	03-DEC-2013	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080) BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0	BV_MW03_2.5, BV_MW04_2.0	19-NOV-2013	29-NOV-2013	03-DEC-2013	✓	02-DEC-2013	03-DEC-2013	✓

Matrix: **WATER** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EG020T: Total Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_19-11-13_AM		19-NOV-2013	02-DEC-2013	18-MAY-2014	✓	02-DEC-2013	18-MAY-2014	✓
EG035T: Total Recoverable Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_19-11-13_AM		19-NOV-2013	----	----	----	28-NOV-2013	17-DEC-2013	✓
EP066: Polychlorinated Biphenyls (PCB)								
Amber Glass Bottle - Unpreserved (EP066) R01_19-11-13_AM		19-NOV-2013	26-NOV-2013	26-NOV-2013	✓	03-DEC-2013	11-JAN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Amber Glass Bottle - Unpreserved (EP071) R01_19-11-13_AM		19-NOV-2013	26-NOV-2013	26-NOV-2013	✓	02-DEC-2013	11-JAN-2014	✓
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074) R01_19-11-13_AM		19-NOV-2013	29-NOV-2013	03-DEC-2013	✓	29-NOV-2013	03-DEC-2013	✓
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) R01_19-11-13_AM		19-NOV-2013	29-NOV-2013	03-DEC-2013	✓	29-NOV-2013	03-DEC-2013	✓
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) R01_19-11-13_AM		19-NOV-2013	29-NOV-2013	03-DEC-2013	✓	29-NOV-2013	03-DEC-2013	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) R01_19-11-13_AM	19-NOV-2013	29-NOV-2013	03-DEC-2013	✓	29-NOV-2013	03-DEC-2013	✓
EP074H: Naphthalene							
Amber VOC Vial - Sulfuric Acid (EP074) R01_19-11-13_AM	19-NOV-2013	29-NOV-2013	03-DEC-2013	✓	29-NOV-2013	03-DEC-2013	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) R01_19-11-13_AM	19-NOV-2013	29-NOV-2013	03-DEC-2013	✓	29-NOV-2013	03-DEC-2013	✓
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) R01_19-11-13_AM	19-NOV-2013	29-NOV-2013	03-DEC-2013	✓	29-NOV-2013	03-DEC-2013	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) R01_19-11-13_AM	19-NOV-2013	29-NOV-2013	03-DEC-2013	✓	29-NOV-2013	03-DEC-2013	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_19-11-13_AM	19-NOV-2013	26-NOV-2013	26-NOV-2013	✓	02-DEC-2013	11-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_19-11-13_AM	19-NOV-2013	26-NOV-2013	26-NOV-2013	✓	02-DEC-2013	11-JAN-2014	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) R01_19-11-13_AM	19-NOV-2013	29-NOV-2013	03-DEC-2013	✓	29-NOV-2013	03-DEC-2013	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080) R01_19-11-13_AM	19-NOV-2013	29-NOV-2013	03-DEC-2013	✓	29-NOV-2013	03-DEC-2013	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	6	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER**

Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							



Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	1	9	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatle Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Polychlorinated Biphenyls (PCB)	EP066	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)



Analytical Methods	Method	Matrix	Method Descriptions
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na ₂ SO ₄ and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	ES1325762-001	Anonymous	Copper	7440-50-8	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG005T: Total Metals by ICP-AES	ES1325762-001	Anonymous	Zinc	7440-66-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

Regular Sample Surrogates

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075(SIM)T: PAH Surrogates	ES1325884-006	R01_19-11-13_AM	4-Terphenyl-d14	1718-51-0	117 %	32-112 %	Recovery greater than upper data quality objective

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: **SOIL**

Method	Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved							
BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0	BV_MW03_2.5, BV_MW04_2.0,	29-NOV-2013	26-NOV-2013	3	02-DEC-2013	26-NOV-2013	6
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved							
BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0	BV_MW03_2.5, BV_MW04_2.0,	29-NOV-2013	26-NOV-2013	3	02-DEC-2013	26-NOV-2013	6



Matrix: **SOIL**

Method Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP074C: Sulfonated Compounds						
Soil Glass Jar - Unpreserved BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0 BV_MW03_2.5, BV_MW04_2.0	29-NOV-2013	26-NOV-2013	3	02-DEC-2013	26-NOV-2013	6
EP074D: Fumigants						
Soil Glass Jar - Unpreserved BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0 BV_MW03_2.5, BV_MW04_2.0	29-NOV-2013	26-NOV-2013	3	02-DEC-2013	26-NOV-2013	6
EP074E: Halogenated Aliphatic Compounds						
Soil Glass Jar - Unpreserved BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0 BV_MW03_2.5, BV_MW04_2.0	29-NOV-2013	26-NOV-2013	3	02-DEC-2013	26-NOV-2013	6
EP074F: Halogenated Aromatic Compounds						
Soil Glass Jar - Unpreserved BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0 BV_MW03_2.5, BV_MW04_2.0	29-NOV-2013	26-NOV-2013	3	02-DEC-2013	26-NOV-2013	6
EP074G: Trihalomethanes						
Soil Glass Jar - Unpreserved BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0 BV_MW03_2.5, BV_MW04_2.0	29-NOV-2013	26-NOV-2013	3	02-DEC-2013	26-NOV-2013	6
EP074H: Naphthalene						
Soil Glass Jar - Unpreserved BV_SB04_2.0, BV_MW05_3.0, BV_MW06_2.0 BV_MW03_2.5, BV_MW04_2.0	29-NOV-2013	26-NOV-2013	3	02-DEC-2013	26-NOV-2013	6

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

6.12.13

CHAIN OF CUSTODY

ALS Laboratory
ALS Sydney
ALS Melbourne
ALS Brisbane
ALS Perth
ALS Christchurch
ALS Auckland
ALS Johannesburg
ALS Harare
ALS Accra
ALS Cape Town
ALS Durban
ALS Lagos
ALS Nairobi
ALS New Delhi
ALS Singapore
ALS Tokyo
ALS Yokohama

CLIENT: **EKM**
 OFFICE: **Sydney**
 PROJECT: **Project Symphony**
 ORDER NUMBER: **0724193**
 PROJECT MANAGER: **JOSEPH FERLING**
 CONTACT PH: _____
 SAMPLER: **STEPHEN MULLIGAN**
 CONTACT MOBILE: _____
 COC emailed to ALS? (YES / NO)
 Email Reports to (will default to PM if no other addresses are listed): **Sydney.Macgregor**
 Email Invoices to (will default to PM if no other addresses are listed): _____

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRI
1	BB-MW02-0.1	27/11/13	SOIL	2XB
2	BB-MW02-9-0	27/11/13		
3	BB-MW01-0-1	27/11/13		1x
4	BB-MW01-2-3	27/11/13		1x
5	BB-MW03-0-5	27/11/13		1x
6	BB-MW05-0-9	27/11/13		1x
7	BB-MW05-3-0	27/11/13		1x
8	BB-MW05-0-2	27/11/13		1x
9	BB-MW04-0-5	27/11/13		1x
10	BB-MW08-3-9	27/11/13		1x
11	BB-MW11-3-8	27/11/13		1x
12	BB-MW13-1-8	27/11/13		1x

Water Contaminant Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; DRG = Nitric Preserved DRG; SH = VOA Vol HCl Preserved; VI = VOA Vol Sulfuric Preserved; VS = VOA Vol Sulfuric Preserved; AV = A = Zinc Acetate Preserved; E = EDTA Preserved; B = Bore Water; ST = Strain Bottle; AEG = Plastic Bag for Acid Sulphate

Standard TAT (List due date):
 Non Standard or urgent TAT (List due date):

RELINQUISHED BY:
Stephen Mulligan
 DATE/TIME:
27/11/13

RECEIVED BY:
G. J. ...
 DATE/TIME:
29/11/13

COC SEQUENCE	NO.
1	1
2	2
3	3

INFORMATION

ANALYSIS REQUIRED INCLUDING:	WHERE METALS ARE REQUIRED, SPECIFY TOTAL
S-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	X
17 Metals (As, Ba, Be, Bi, B, Br, Ca, Co, Cr, Cu, Fe, Mn, Ni, Pb, V, Zn, B)	X
S-24 TRHCS (CAYREXN, PAH, Phenols)	X
VOC Target Scan	X

RECEIVED BY:
29/11/13

DATE/TIME:
29/11/13

STORY USE ONLY (Circle)
 No
 Yes

RECEIVED BY:
29/11/13

ANALYSIS REQUIRED INCLUDING:	WHERE METALS ARE REQUIRED, SPECIFY TOTAL
Particle Sizing to 75µm (Sieve)	X
Organic Matter plus Total Organic Carbon (EPC4)	X
Electrical Conductivity	X

ADDITIONAL INFORMATION

Additional Information: **Hold**

Environmental Division
 Sydney
 Work Order
ES1326079



Telephone: +61-2-8784 8555



CHAIN OF CUSTODY

ALS Laboratory
 10000 17th St, Suite 100
 Denver, CO 80202
 Phone: 303.425.4000
 Fax: 303.425.4001
 Email: info@alslab.com

CLIENT: MACCRO
 OFFICE: 9000
 PROJECT: Project Symphony
 ORDER NUMBER: 0224193
 PROJECT MANAGER: JF
 SAMPLER: HC
 CONTACT PH: 303-418888
 SAMPLER MOBILE:
 EDD FORMAT (or default):
 CDC emailed to ALS? (YES / NO) YES
 Email Reports to (will default to PM if no other addresses are listed): Symphony.maccro@mac.com
 Email Invoices to (will default to PM if no other addresses are listed):

TURNAROUND REQUIRED (Standard TAT may be longer than Case Duration)
 ALS QUOTE NO.: SY-
 SITE:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRE
23	BU-MW01-1.75	27-11-13	SOIL	25
12	BU-MW01-3.0			
24	BU-MW01-5.0			
13	BU-SB01-2.0			
25	BU-SB01-3.0			
14	BU-SB02-2.5			
26	BU-SB02-1.6			
15	BL-MW04-1.55			
16	BL-MW04-2.5			
17	BL-SB02-1.75			
18	BL-SB02-2.7			
19	BU-MW02-4.0			28

Water Container Codes: P = Unpreserved Plastic; N = Nice Preserved Plastic; QRC = Nice Preserved QRC; SH = VOA Vol HCl Preserved; VG = VOA Vol Sodium Hydroxide Preserved; VS = VOA Vol Substrate Preserved; AV = VOA Vol Acid Preserved; E = EDTA Preserved Bottle; ST = Stereo Bottle; ASD = Plastic Bag for Acid Sample
 2 = Zinc Acetate Preserved Bottle

Standard TAT (List due date):
 Standard TAT (List due date):
 Non Standard or urgent TAT (List due date):

RELINQUISHED BY: HANNAH C
 DATE/TIME: 28-11-13
 RECEIVED BY: [Signature]
 DATE/TIME: 29-11-13
 CDC SEQUENCE #
 OF: 1 2 3 4

INFORMATION	ANALYSIS REQUIRED INCLUDING 5 WHICH METALS ARE REQUIRED, SPECIFY TOTAL (L)
(refer to CONTAINERS)	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B, Mo, Ti, Se)
3	5-24 TRHCs (C40)BTEXN, PAH, Phenols
	VOC Target Scan
	Particle Sizing to 75µm (Sieve)
	Organic Matter plus Total Organic Carbon (EPO4)

JJ Plastic; F = Formolysis Preserved Glass; preserved Bin

DRY USE ONLY (Circle)
 YES
 NO
 Labels present upon receipt: YES
 Temperature on Receipt: 4.7
 RECEIVED BY:
 DATE/TIME:

Additional Information	Comments on likely containment levels, elements, or complex requiring specific IIC analysis etc.
	NOD
	HOLD
	HOLD
	HOLD
	HOLD
	hydrometer

JJ Plastic; F = Formolysis Preserved Glass; preserved Bin

CHAIN OF CUSTODY
ALS Laboratory
Please Refer to

TURNAROUND REQU
(Standard TAT may be for
Ultra Trace Detection)

CLIENT: MULLER
OFFICE: PHOENIX
PROJECT: Project Symphony
ORDER NUMBER: 0324193
PROJECT MANAGER: JE
SAMPLER: HC
COC emailed to ALS? (YES / NO)
Email Reports to (will default to PM if no other addresses are listed): Symphony-navigator@cs
Email Invoice to (will default to PM if no other addresses are listed):

CONTACT PH:
SAMPLER MOBILE:
EDD FORMAT (or default):

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)	DATE / TIME	TYPE & PRE
27	RO1271113-HC	27-11-13	soil
20	SOIL TRAP SAMPLE	22-11-13	soil
21	BLANK TRAP	28-11-13	soil
	TSC 2	22-11-13	soil

Water Container Cap: P = Unpreserved Plastic; N = Nitrile Preserved Plastic; DRG = Nitrile Preserved ORHC; SH
V = VOA Vol HCl Preserved; VS = VOA Vol Sodium Bisulfate Preserved; VS = VOA Vol Sulfuric Preserved; AV = /
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sample Tubs; ASD = Plastic Thin for Acid Soil

Standard TAT (List due date):
Non Standard or urgent TAT (List due date):

COC SEQUENCE:
1 2 3

RECEIVED BY: SO
DATE/TIME: 29/11

RELINQUISHED BY:
DATE/TIME:

ANALYSIS REQUIRED including:
When Metals are required, specify Total (T)

INFORMATION	ANALYSIS REQUIRED
TOTAL CONTAINERS	S-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, Cr, Mo, Ti, Se)
	S-24 TRHC (C40/BTEXN, PAH, Phenols)
	VOC Target Scan

SOC: Preserved; S = Sodium Hydroxide Preserved Plastic; AS = Amber Glass Linings and Vial SC = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Tub

1. COPY USE ONLY (Circle)
2. No N/A
3. No N/A
4. No N/A

RECEIVED BY: JE
DATE/TIME: 29/11

Additional Information:
Comments on likely contaminant levels, dilutions, or samples requiring specific GC analysis etc.

Particle Sizing to 75µm (Sieve)
Organic Matter Plus Total Organic Carbon (EPO4)

Plastic; F = Formaldehyde Preserved Glass;

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: ES1326079		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	Page	: 1 of 4
Order number	: 0224193	Quote number	: ES2013ENVRES0369 (SY/794/13)
C-O-C number	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
Sampler	: SM		

Dates

Date Samples Received	: 29-NOV-2013	Issue Date	: 02-DEC-2013 18:16
Client Requested Due Date	: 06-DEC-2013	Scheduled Reporting Date	: 06-DEC-2013

Delivery Details

Mode of Delivery	: Carrier	Temperature	: ----
No. of coolers/boxes	: 1 HARD	No. of samples received	: 28
Security Seal	: Intact.	No. of samples analysed	: 22

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Particle Size analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exist.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA032 Electrical Conductivity (Saturated Paste)	SOIL - EA055-103 Moisture Content	SOIL - EA150* Particle Size Analysis by Sieving (Default sieves from SOIL - EA150H Particle Size Analysis by Hydrometer: AS1289 SOIL - ED007 CEC / Exchangeable Cations (ED007) -All SOIL - EG005T (solids) Total Metals by ICP-AES
ES1326079-001	27-NOV-2013 15:00	BB_MW02_0.1		✓	✓		✓
ES1326079-002	27-NOV-2013 15:00	BB_MW02_9.0		✓			✓
ES1326079-003	27-NOV-2013 15:00	BB_MW01_0.1		✓			✓
ES1326079-004	27-NOV-2013 15:00	BB_MW01_2.3		✓			✓
ES1326079-005	27-NOV-2013 15:00	BB_MW03_0.5		✓			✓
ES1326079-006	27-NOV-2013 15:00	BB_MW03_0.9		✓			✓
ES1326079-007	27-NOV-2013 15:00	BB_MW05_3.0		✓			✓
ES1326079-008	27-NOV-2013 15:00	BB_MW04_0.5		✓			✓
ES1326079-009	27-NOV-2013 15:00	BQ_MW08_3.9		✓	✓		✓
ES1326079-010	27-NOV-2013 15:00	BQ_MW11_3.8		✓	✓		✓
ES1326079-011	27-NOV-2013 15:00	BQ_MW13_1.8		✓	✓		✓
ES1326079-016	27-NOV-2013 15:00	BL_MW04_2.5				✓	
ES1326079-018	27-NOV-2013 15:00	BL_SB02_2.7				✓	
ES1326079-019	27-NOV-2013 15:00	BU_MW02_4.0					✓
ES1326079-022	27-NOV-2013 15:00	BB_MW05_0.2	✓				
ES1326079-023	27-NOV-2013 15:00	BU_MW01_1.75	✓				
ES1326079-024	27-NOV-2013 15:00	BU_MW01_5.0	✓				
ES1326079-025	27-NOV-2013 15:00	BU_SB01_3.0	✓				
ES1326079-026	27-NOV-2013 15:00	BU_SB02_1.6	✓				

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EP004 (Carbon) Total Organic Carbon (Calc.)	SOIL - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-24 TRH/BTEXN/PAH + Phenols	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1326079-001	27-NOV-2013 15:00	BB_MW02_0.1	✓			✓		✓	
ES1326079-002	27-NOV-2013 15:00	BB_MW02_9.0				✓		✓	
ES1326079-003	27-NOV-2013 15:00	BB_MW01_0.1				✓		✓	
ES1326079-004	27-NOV-2013 15:00	BB_MW01_2.3				✓		✓	
ES1326079-005	27-NOV-2013 15:00	BB_MW03_0.5				✓		✓	



			SOIL - EP004 (Carbon) Total Organic Carbon (Calc.)	SOIL - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - S-03 15 Metals (NEPM 2013 Suite -incl. Digestion)	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-24 TRH/BTEXN/PAH + Phenols	SOIL - S-27 TRH/BTEXN/PAH/Phenols/6Metals
ES1326079-006	27-NOV-2013 15:00	BB_MW03_0.9				✓		✓	
ES1326079-007	27-NOV-2013 15:00	BB_MW05_3.0				✓		✓	
ES1326079-008	27-NOV-2013 15:00	BB_MW04_0.5				✓		✓	
ES1326079-009	27-NOV-2013 15:00	BQ_MW08_3.9		✓		✓		✓	
ES1326079-010	27-NOV-2013 15:00	BQ_MW11_3.8			✓	✓		✓	
ES1326079-011	27-NOV-2013 15:00	BQ_MW13_1.8			✓	✓		✓	
ES1326079-012	27-NOV-2013 15:00	BU_MW01_3.0			✓				✓
ES1326079-013	27-NOV-2013 15:00	BU_SB01_2.0			✓				✓
ES1326079-014	27-NOV-2013 15:00	BU_SB02_2.5			✓				✓
ES1326079-015	27-NOV-2013 15:00	BL_MW04_1.55			✓				✓
ES1326079-016	27-NOV-2013 15:00	BL_MW04_2.5		✓					
ES1326079-017	27-NOV-2013 15:00	BL_SB02_1.75			✓				✓
ES1326079-018	27-NOV-2013 15:00	BL_SB02_2.7		✓					
ES1326079-020	22-NOV-2013 15:00	ERM TRIP SPIKE2					✓		
ES1326079-021	22-NOV-2013 15:00	BLANK TRIP					✓		
ES1326079-028	27-NOV-2013 15:00	TSC					✓		

Matrix: **WATER**

Laboratory sample ID Client sampling date / time Client sample ID

ES1326079-027	27-NOV-2013 15:00	R01_271113_HC	(On Hold) WATER No analysis requested ✓
---------------	-------------------	---------------	---

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



Requested Deliverables

SYMPHONY ERARING

- | | | |
|--|-------|--------------------------|
| - *AU Certificate of Analysis - NATA (COA) | Email | Symphony.Eraring@erm.com |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) | Email | Symphony.Eraring@erm.com |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) | Email | Symphony.Eraring@erm.com |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN | Email | Symphony.Eraring@erm.com |
| - A4 - AU Tax Invoice (INV) | Email | Symphony.Eraring@erm.com |
| - Chain of Custody (CoC) (COC) | Email | Symphony.Eraring@erm.com |
| - EDI Format - ENMRG (ENMRG) | Email | Symphony.Eraring@erm.com |
| - EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM) | Email | Symphony.Eraring@erm.com |
| - EDI Format - ESDAT (ESDAT) | Email | Symphony.Eraring@erm.com |
| - EDI Format - XTab (XTAB) | Email | Symphony.Eraring@erm.com |

THE ACCOUNTS PAYABLE

- | | | |
|-------------------------------|-------|---------------------|
| - A4 - AU Tax Invoice (INV) | Email | au.accounts@erm.com |
|-------------------------------|-------|---------------------|

CERTIFICATE OF ANALYSIS

Work Order	: ES1326079	Page	: 1 of 26
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0224193		
C-O-C number	: ----	Date Samples Received	: 29-NOV-2013
Sampler	: SM	Issue Date	: 11-DEC-2013
Site	: ----		
Quote number	: SY/794/13	No. of samples received	: 28
		No. of samples analysed	: 22

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA150H: Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1-2006 was not requested by the client. Typical sediment SPD values used for calculations and consequently NATA endorsement does not apply to hydrometer results.**
- **EP080: The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.**



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
		Sydney Organics
Raymond Commodor	Instrument Chemist	Sydney Inorganics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BB_MW02_0.1	BB_MW02_9.0	BB_MW01_0.1	BB_MW01_2.3	BB_MW03_0.5
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326079-001	ES1326079-002	ES1326079-003	ES1326079-004	ES1326079-005
EA150: Particle Sizing								
+75µm	----	1	%	48	----	----	----	----
+150µm	----	1	%	36	----	----	----	----
+300µm	----	1	%	24	----	----	----	----
+425µm	----	1	%	20	----	----	----	----
+600µm	----	1	%	17	----	----	----	----
+1180µm	----	1	%	14	----	----	----	----
+2.36mm	----	1	%	12	----	----	----	----
+4.75mm	----	1	%	9	----	----	----	----
+9.5mm	----	1	%	5	----	----	----	----
+19.0mm	----	1	%	5	----	----	----	----
+37.5mm	----	1	%	<1	----	----	----	----
+75.0mm	----	1	%	<1	----	----	----	----
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	7.6	8.3	6.4	7.3	5.2
EA032: Electrical Conductivity (saturated paste)								
Electrical Conductivity (Saturated Paste)	----	1	µS/cm	466	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	25.0	16.6	16.6	18.4	20.0
EA150: Soil Classification based on Particle Size								
Fines (<75 µm)	----	1	%	52	----	----	----	----
Sand (>75 µm)	----	1	%	37	----	----	----	----
Gravel (>2mm)	----	1	%	12	----	----	----	----
Cobbles (>6cm)	----	1	%	<1	----	----	----	----
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	22.1	4.8	1.2	2.7	3.2
Exchangeable Magnesium	----	0.1	meq/100g	2.6	6.6	7.1	6.1	6.3
Exchangeable Potassium	----	0.1	meq/100g	0.3	0.4	0.3	0.4	0.4
Exchangeable Sodium	----	0.1	meq/100g	<0.1	0.5	0.8	0.6	0.7
Cation Exchange Capacity	----	0.1	meq/100g	25.1	12.2	9.4	9.8	10.6
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	10	6	8	10	17
Barium	7440-39-3	10	mg/kg	100	60	110	90	550



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BB_MW02_0.1	BB_MW02_9.0	BB_MW01_0.1	BB_MW01_2.3	BB_MW03_0.5
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326079-001	ES1326079-002	ES1326079-003	ES1326079-004	ES1326079-005
EG005T: Total Metals by ICP-AES - Continued								
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	1
Chromium	7440-47-3	2	mg/kg	15	8	14	17	26
Cobalt	7440-48-4	2	mg/kg	7	7	4	34	6
Copper	7440-50-8	5	mg/kg	7	7	11	15	14
Lead	7439-92-1	5	mg/kg	11	13	11	12	19
Manganese	7439-96-5	5	mg/kg	98	1190	101	672	56
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	<2	4
Nickel	7440-02-0	2	mg/kg	13	8	12	23	12
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	35	17	33	41	56
Zinc	7440-66-6	5	mg/kg	40	36	78	82	76
Thallium	7440-28-0	5	mg/kg	<5	<5	<5	<5	<5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP004: Organic Matter								
Organic Matter	----	0.5	%	1.6	----	----	----	----
Total Organic Carbon	----	0.5	%	1.0	----	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BB_MW02_0.1	BB_MW02_9.0	BB_MW01_0.1	BB_MW01_2.3	BB_MW03_0.5
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326079-001	ES1326079-002	ES1326079-003	ES1326079-004	ES1326079-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BB_MW02_0.1	BB_MW02_9.0	BB_MW01_0.1	BB_MW01_2.3	BB_MW03_0.5
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326079-001	ES1326079-002	ES1326079-003	ES1326079-004	ES1326079-005
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	105	101	101	97.8	95.6
2-Chlorophenol-D4	93951-73-6	0.1	%	118	110	111	108	104
2,4,6-Tribromophenol	118-79-6	0.1	%	110	99.3	102	96.6	93.6
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	113	106	106	105	101
Anthracene-d10	1719-06-8	0.1	%	110	106	106	102	100
4-Terphenyl-d14	1718-51-0	0.1	%	103	98.7	98.8	92.9	90.0
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	85.2	92.6	98.0	93.9	83.6
Toluene-D8	2037-26-5	0.1	%	82.2	90.2	95.4	93.4	84.2
4-Bromofluorobenzene	460-00-4	0.1	%	88.6	96.9	103	103	94.6



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BB_MW03_0.9	BB_MW05_3.0	BB_MW04_0.5	BQ_MW08_3.9	BQ_MW11_3.8
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326079-006	ES1326079-007	ES1326079-008	ES1326079-009	ES1326079-010
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	7.7	7.9	4.8	6.1	7.7
EA032: Electrical Conductivity (saturated paste)								
Electrical Conductivity (Saturated Paste)	----	1	µS/cm	----	----	----	1250	228
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	16.8	20.0	24.3	24.4	21.3
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	2.4	2.6	2.3	14.2	3.8
Exchangeable Magnesium	----	0.1	meq/100g	6.8	8.4	8.6	8.4	8.1
Exchangeable Potassium	----	0.1	meq/100g	0.3	0.4	1.0	0.3	0.3
Exchangeable Sodium	----	0.1	meq/100g	0.5	0.5	1.6	3.9	2.0
Cation Exchange Capacity	----	0.1	meq/100g	10.0	11.9	13.5	26.8	14.2
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	14	9	20	8	15
Barium	7440-39-3	10	mg/kg	120	130	400	120	80
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	2	1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	1	<1	1	2	1
Chromium	7440-47-3	2	mg/kg	22	16	24	20	19
Cobalt	7440-48-4	2	mg/kg	7	4	4	11	8
Copper	7440-50-8	5	mg/kg	16	13	29	55	23
Lead	7439-92-1	5	mg/kg	21	12	22	16	17
Manganese	7439-96-5	5	mg/kg	82	122	32	273	175
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	2	<2
Nickel	7440-02-0	2	mg/kg	20	13	23	25	13
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	47	37	47	59	62
Zinc	7440-66-6	5	mg/kg	87	52	101	117	100
Thallium	7440-28-0	5	mg/kg	<5	<5	<5	<5	<5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	0.5	mg/kg	----	----	----	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BB_MW03_0.9	BB_MW05_3.0	BB_MW04_0.5	BQ_MW08_3.9	BQ_MW11_3.8
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326079-006	ES1326079-007	ES1326079-008	ES1326079-009	ES1326079-010
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
Isopropylbenzene	98-82-8	0.5	mg/kg	----	----	----	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	----	----	----	<0.5	<0.5
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	----	----	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	----	----	<0.5	<0.5
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	----	----	<0.5	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	----	----	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	----	----	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	----	----	----	<0.5	<0.5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	5	mg/kg	----	----	----	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	----	----	----	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	----	----	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	----	----	<5	<5
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	0.5	mg/kg	----	----	----	<0.5	<0.5
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	----	<0.5	<0.5
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	----	<0.5	<0.5
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	----	<0.5	<0.5
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	----	<0.5	<0.5
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	----	<0.5	<0.5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	----	<5	<5
Chloromethane	74-87-3	5	mg/kg	----	----	----	<5	<5
Vinyl chloride	75-01-4	5	mg/kg	----	----	----	<5	<5
Bromomethane	74-83-9	5	mg/kg	----	----	----	<5	<5
Chloroethane	75-00-3	5	mg/kg	----	----	----	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	----	<5	<5
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	----	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg	----	----	----	<0.5	<0.5
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	----	<0.5	<0.5
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	----	<0.5	<0.5
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	----	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BB_MW03_0.9	BB_MW05_3.0	BB_MW04_0.5	BQ_MW08_3.9	BQ_MW11_3.8
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326079-006	ES1326079-007	ES1326079-008	ES1326079-009	ES1326079-010
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	----	<0.5	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	----	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	----	<0.5	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	----	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	----	----	----	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	----	----	----	<0.5	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	----	<0.5	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	----	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	----	<0.5	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	----	<0.5	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	----	<0.5	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	----	<0.5	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	----	<0.5	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	----	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	----	<0.5	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	----	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	----	<0.5	<0.5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	----	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	----	----	----	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	----	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	----	<0.5	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	----	<0.5	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	----	<0.5	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	----	<0.5	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	----	<0.5	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	----	<0.5	<0.5
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	----	----	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	----	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	----	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg	----	----	----	<0.5	<0.5
EP074H: Naphthalene								



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BB_MW03_0.9	BB_MW05_3.0	BB_MW04_0.5	BQ_MW08_3.9	BQ_MW11_3.8
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326079-006	ES1326079-007	ES1326079-008	ES1326079-009	ES1326079-010
EP074H: Naphthalene - Continued								
Naphthalene	91-20-3	5	mg/kg	----	----	----	<5	<5
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BB_MW03_0.9	BB_MW05_3.0	BB_MW04_0.5	BQ_MW08_3.9	BQ_MW11_3.8
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326079-006	ES1326079-007	ES1326079-008	ES1326079-009	ES1326079-010
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	----	112	93.5
Toluene-D8	2037-26-5	0.1	%	----	----	----	118	104
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	----	105	93.5
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	90.3	97.7	94.5	92.6	93.4
2-Chlorophenol-D4	93951-73-6	0.1	%	98.6	107	105	102	105
2,4,6-Tribromophenol	118-79-6	0.1	%	89.1	94.9	93.4	87.1	86.3



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				BB_MW03_0.9	BB_MW05_3.0	BB_MW04_0.5	BQ_MW08_3.9	BQ_MW11_3.8
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326079-006	ES1326079-007	ES1326079-008	ES1326079-009	ES1326079-010
EP075(SIM)S: Phenolic Compound Surrogates - Continued								
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	97.6	104	102	104	102
Anthracene-d10	1719-06-8	0.1	%	97.1	104	101	99.9	101
4-Terphenyl-d14	1718-51-0	0.1	%	88.8	98.9	92.6	91.2	91.8
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	82.9	85.5	94.1	118	97.9
Toluene-D8	2037-26-5	0.1	%	80.9	84.5	91.6	110	97.9
4-Bromofluorobenzene	460-00-4	0.1	%	91.1	98.0	98.6	107	94.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BQ_MW13_1.8	BU_MW01_3.0	BU_SB01_2.0	BU_SB02_2.5	BL_MW04_1.55
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326079-011	ES1326079-012	ES1326079-013	ES1326079-014	ES1326079-015
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	8.6	----	----	----	----
EA032: Electrical Conductivity (saturated paste)								
Electrical Conductivity (Saturated Paste)	----	1	µS/cm	468	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	17.6	14.6	15.1	12.6	10.2
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	24.0	----	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	5.3	----	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	0.6	----	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	30.0	----	----	----	----
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	13	----	----	----	----
Barium	7440-39-3	10	mg/kg	130	----	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	----
Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	18	----	----	----	----
Cobalt	7440-48-4	2	mg/kg	12	----	----	----	----
Copper	7440-50-8	5	mg/kg	24	----	----	----	----
Lead	7439-92-1	5	mg/kg	12	----	----	----	----
Manganese	7439-96-5	5	mg/kg	1230	----	----	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	----	----	----	----
Nickel	7440-02-0	2	mg/kg	15	----	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
Vanadium	7440-62-2	5	mg/kg	40	----	----	----	----
Zinc	7440-66-6	5	mg/kg	75	----	----	----	----
Thallium	7440-28-0	5	mg/kg	<5	----	----	----	----
Arsenic	7440-38-2	5	mg/kg	----	14	10	10	8
Cadmium	7440-43-9	1	mg/kg	----	1	<1	1	<1
Chromium	7440-47-3	2	mg/kg	----	15	12	17	18
Copper	7440-50-8	5	mg/kg	----	27	19	27	28



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BQ_MW13_1.8	BU_MW01_3.0	BU_SB01_2.0	BU_SB02_2.5	BL_MW04_1.55
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326079-011	ES1326079-012	ES1326079-013	ES1326079-014	ES1326079-015
EG005T: Total Metals by ICP-AES - Continued								
Lead	7439-92-1	5	mg/kg	----	19	12	17	12
Nickel	7440-02-0	2	mg/kg	----	30	15	26	25
Zinc	7440-66-6	5	mg/kg	----	108	105	99	117
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	<5	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	<5	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	<5	<5	<5
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	<5	<5	<5
Chloromethane	74-87-3	5	mg/kg	<5	<5	<5	<5	<5
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	<5	<5	<5
Bromomethane	74-83-9	5	mg/kg	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BQ_MW13_1.8	BU_MW01_3.0	BU_SB01_2.0	BU_SB02_2.5	BL_MW04_1.55
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326079-011	ES1326079-012	ES1326079-013	ES1326079-014	ES1326079-015
EP074E: Halogenated Aliphatic Compounds - Continued								
Chloroethane	75-00-3	5	mg/kg	<5	<5	<5	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	<5	<5	<5
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BQ_MW13_1.8	BU_MW01_3.0	BU_SB01_2.0	BU_SB02_2.5	BL_MW04_1.55
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326079-011	ES1326079-012	ES1326079-013	ES1326079-014	ES1326079-015
EP074F: Halogenated Aromatic Compounds - Continued								
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP074H: Naphthalene								
Naphthalene	91-20-3	5	mg/kg	<5	<5	<5	<5	<5
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BQ_MW13_1.8	BU_MW01_3.0	BU_SB01_2.0	BU_SB02_2.5	BL_MW04_1.55
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326079-011	ES1326079-012	ES1326079-013	ES1326079-014	ES1326079-015
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1

EP074S: VOC Surrogates



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BQ_MW13_1.8	BU_MW01_3.0	BU_SB01_2.0	BU_SB02_2.5	BL_MW04_1.55
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326079-011	ES1326079-012	ES1326079-013	ES1326079-014	ES1326079-015
EP074S: VOC Surrogates - Continued								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	101	94.1	95.8	99.0	99.0
Toluene-D8	2037-26-5	0.1	%	108	96.0	105	100	97.5
4-Bromofluorobenzene	460-00-4	0.1	%	95.0	86.9	90.9	87.4	88.8
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	91.2	91.6	99.4	97.2	96.4
2-Chlorophenol-D4	93951-73-6	0.1	%	102	103	109	108	106
2,4,6-Tribromophenol	118-79-6	0.1	%	83.4	83.3	91.1	87.6	82.3
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	101	98.8	106	107	102
Anthracene-d10	1719-06-8	0.1	%	102	97.7	104	103	101
4-Terphenyl-d14	1718-51-0	0.1	%	94.8	89.7	95.8	94.9	92.5
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	98.9	99.6	104	104
Toluene-D8	2037-26-5	0.1	%	101	90.1	98.8	93.9	91.6
4-Bromofluorobenzene	460-00-4	0.1	%	97.5	88.6	93.4	88.6	90.3



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BL_MW04_2.5	BL_SB02_1.75	BL_SB02_2.7	BU_MW02_4.0	ERM TRIP SPIKE2
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	22-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326079-016	ES1326079-017	ES1326079-018	ES1326079-019	ES1326079-020
EA150: Particle Sizing								
+75µm	----	1	%	----	----	----	4	----
+150µm	----	1	%	----	----	----	2	----
+300µm	----	1	%	----	----	----	2	----
+425µm	----	1	%	----	----	----	1	----
+600µm	----	1	%	----	----	----	1	----
+1180µm	----	1	%	----	----	----	<1	----
+2.36mm	----	1	%	----	----	----	<1	----
+4.75mm	----	1	%	----	----	----	<1	----
+9.5mm	----	1	%	----	----	----	<1	----
+19.0mm	----	1	%	----	----	----	<1	----
+37.5mm	----	1	%	----	----	----	<1	----
+75.0mm	----	1	%	----	----	----	<1	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	15.2	19.6	14.8	----	----
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	----	----	41	----
Silt (2-60 µm)	----	1	%	----	----	----	56	----
Sand (0.06-2.00 mm)	----	1	%	----	----	----	3	----
Gravel (>2mm)	----	1	%	----	----	----	<1	----
Cobbles (>6cm)	----	1	%	----	----	----	<1	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	16	----	----	----
Cadmium	7440-43-9	1	mg/kg	----	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	----	11	----	----	----
Copper	7440-50-8	5	mg/kg	----	21	----	----	----
Lead	7439-92-1	5	mg/kg	----	19	----	----	----
Nickel	7440-02-0	2	mg/kg	----	10	----	----	----
Zinc	7440-66-6	5	mg/kg	----	79	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BL_MW04_2.5	BL_SB02_1.75	BL_SB02_2.7	BU_MW02_4.0	ERM TRIP SPIKE2
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	22-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326079-016	ES1326079-017	ES1326079-018	ES1326079-019	ES1326079-020
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
Styrene	100-42-5	0.5	mg/kg	----	<0.5	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	----	----	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	----	----	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	----	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	----	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	----	----	----
Chloromethane	74-87-3	5	mg/kg	----	<5	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	----	<5	----	----	----
Bromomethane	74-83-9	5	mg/kg	----	<5	----	----	----
Chloroethane	75-00-3	5	mg/kg	----	<5	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	----	----	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	----	----	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	----	----	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BL_MW04_2.5	BL_SB02_1.75	BL_SB02_2.7	BU_MW02_4.0	ERM TRIP SPIKE2
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	22-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326079-016	ES1326079-017	ES1326079-018	ES1326079-019	ES1326079-020
EP074E: Halogenated Aliphatic Compounds - Continued								
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	----	----	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	----	----	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	----	----	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	----	----	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	----	----	----
1,3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	----	----	----
1,1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	----	----	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	----	----	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	----	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	----	----	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	----	----	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	----	----	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	----	----	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	----	----	----
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BL_MW04_2.5	BL_SB02_1.75	BL_SB02_2.7	BU_MW02_4.0	ERM TRIP SPIKE2
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	22-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326079-016	ES1326079-017	ES1326079-018	ES1326079-019	ES1326079-020
EP074H: Naphthalene								
Naphthalene	91-20-3	5	mg/kg	----	<5	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	----	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	----	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	----	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	----	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	----	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BL_MW04_2.5	BL_SB02_1.75	BL_SB02_2.7	BU_MW02_4.0	ERM TRIP SPIKE2
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	22-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326079-016	ES1326079-017	ES1326079-018	ES1326079-019	ES1326079-020
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	----	28
C10 - C14 Fraction	----	50	mg/kg	----	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg	----	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg	----	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	----	----	33
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	----	----	18
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	----	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	----	----	0.2
Toluene	108-88-3	0.5	mg/kg	----	<0.5	----	----	7.7
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	----	----	0.9
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	----	----	4.6
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	----	----	2.0
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	----	----	15.4
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<0.5	----	----	6.6
Naphthalene	91-20-3	1	mg/kg	----	<1	----	----	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	79.0	----	85.0	----	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	105	----	----	----
Toluene-D8	2037-26-5	0.1	%	----	116	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	100	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	----	103	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	----	115	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	----	96.8	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	----	111	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BL_MW04_2.5	BL_SB02_1.75	BL_SB02_2.7	BU_MW02_4.0	ERM TRIP SPIKE2
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	22-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326079-016	ES1326079-017	ES1326079-018	ES1326079-019	ES1326079-020
EP075(SIM)T: PAH Surrogates - Continued								
Anthracene-d10	1719-06-8	0.1	%	----	111	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	105	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	110	----	----	81.1
Toluene-D8	2037-26-5	0.1	%	----	109	----	----	75.4
4-Bromofluorobenzene	460-00-4	0.1	%	----	102	----	----	81.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BLANK TRIP	TSC	---	---	---
				22-NOV-2013 15:00	27-NOV-2013 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1326079-021	ES1326079-028	---	---	---
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	---	10	mg/kg	<10	52	---	---	---
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	62	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	34	---	---	---
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	0.4	---	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	13.4	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1.8	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	8.8	---	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	3.6	---	---	---
^ Sum of BTEX	---	0.2	mg/kg	<0.2	28.0	---	---	---
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	12.4	---	---	---
Naphthalene	91-20-3	1	mg/kg	<1	<1	---	---	---
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	88.1	94.2	---	---	---
Toluene-D8	2037-26-5	0.1	%	83.2	91.6	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	89.5	95.6	---	---	---



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Certificate of Analysis

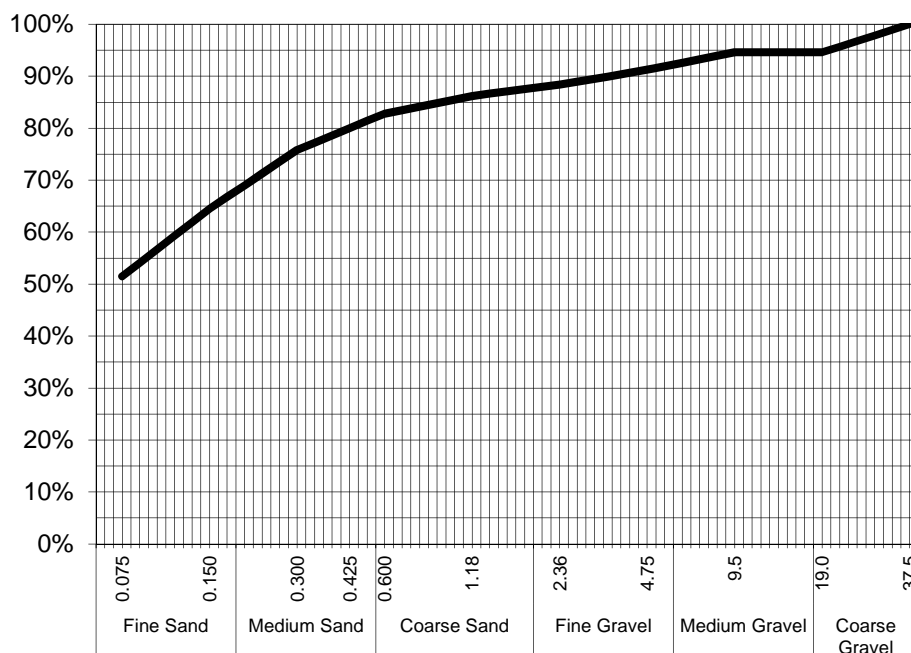
ALS Laboratory Group Pty Ltd
5 Rosegum Road
Warabrook, NSW 2304
pH 02 4968 9433
fax 02 4968 0349
samples.newcastle@alsenviro.com

ALS Environmental
Newcastle, NSW



CLIENT: Joseph Ferring **DATE REPORTED:** 11-Dec-2013
COMPANY: Enviro Resources Management **DATE RECEIVED:** 29-Nov-2013
ADDRESS: Ground Floor **REPORT NO:** ES1326079-001 / PSD
33 Saunders Street, Pyrmont
NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** BB_MW02_0.1

Particle Size Distribution



Particle Size (mm)	Percent Passing
37.5	100%
19.0	95%
9.5	95%
4.75	91%
2.36	88%
1.18	86%
0.600	83%
0.425	80%
0.300	76%
0.150	65%
0.075	52%

Samples analysed as received.

Sample Comments:

Analysed: 9-Dec-13

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description: Fines, sand and gravel

Test Method: AS1289.3.6.1

NATA Accreditation: 825 Site: Newcastle
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Hamish Murray
Laboratory Supervisor, Newcastle
Authorised Signatory

Certificate of Analysis

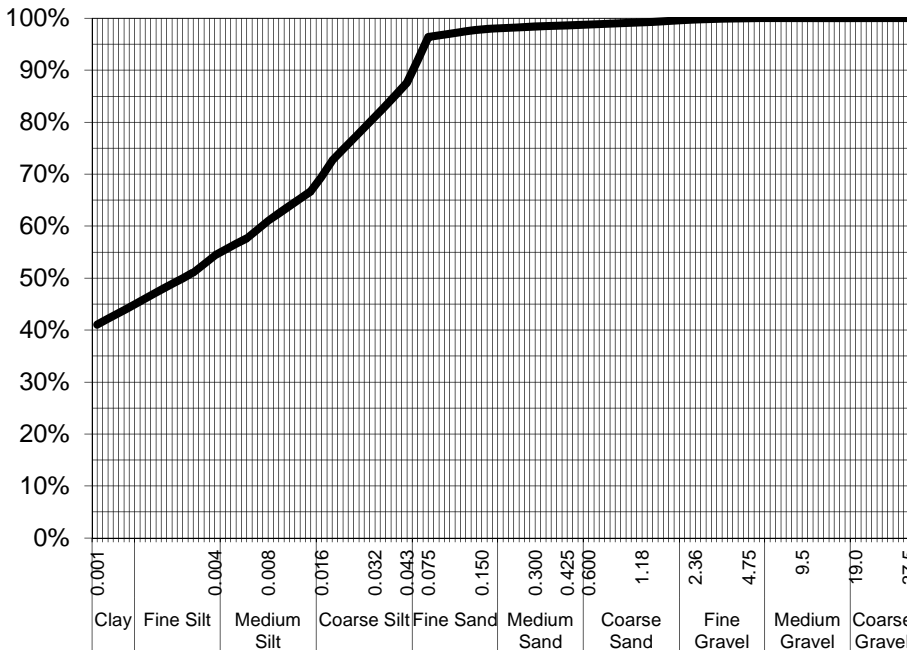
ALS Laboratory Group Pty Ltd
 5 Rosegum Road
 Warabrook, NSW 2304
 pH 02 4968 9433
 fax 02 4968 0349
 samples.newcastle@alsenviro.com

ALS Environmental
Newcastle, NSW



CLIENT: Joseph Ferring **DATE REPORTED:** 11-Dec-2013
COMPANY: Enviro Resources Management **DATE RECEIVED:** 29-Nov-2013
ADDRESS: Ground Floor **REPORT NO:** ES1326079-019 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** BU_MW02_4.0

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	100%
2.36	100%
1.18	99%
0.600	99%
0.425	99%
0.300	98%
0.150	98%
0.075	96%
Particle Size (microns)	
43	88%
32	81%
16	69%
8	61%
4	54%
3	51%
1	41%

Median Particle Size (mm)	0.004
---------------------------	-------

Samples analysed as received.

Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1—2006 was not requested by the client. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results

Sample Comments:

Loss on Pretreatment NA

Sample Description: Silty clay

Test Method: AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.65 g/cm³

NATA Accreditation: 825 Site: Newcastle
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Analysed: 9-Dec-13

Limit of Reporting: 1%

Dispersion Method Shaker

Hydrometer Type ASTM E100

Hamish Murray
 Laboratory Supervisor, Newcastle
Authorised Signatory

QUALITY CONTROL REPORT

Work Order	: ES1326079	Page	: 1 of 16
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 29-NOV-2013
C-O-C number	: ----	Issue Date	: 11-DEC-2013
Sampler	: SM	No. of samples received	: 28
Order number	: 0224193	No. of samples analysed	: 22
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC



NATA Accredited
Laboratory 825

Accredited for
compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Raymond Commodor	Instrument Chemist	Sydney Organics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA002 : pH (Soils) (QC Lot: 3192469)									
ES1326079-001	BB_MW02_0.1	EA002: pH Value	----	0.1	pH Unit	7.6	7.6	0.0	0% - 20%
ES1326079-011	BQ_MW13_1.8	EA002: pH Value	----	0.1	pH Unit	8.6	8.7	0.0	0% - 20%
EA032: Electrical Conductivity (saturated paste) (QC Lot: 3191306)									
ES1325879-002	Anonymous	EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	1940	1940	0.4	0% - 20%
ES1326079-011	BQ_MW13_1.8	EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	468	471	0.6	0% - 20%
EA055: Moisture Content (QC Lot: 3193605)									
ES1326062-014	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	22.6	22.3	1.7	0% - 20%
ES1326065-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	60.6	61.0	0.6	0% - 20%
EA055: Moisture Content (QC Lot: 3193606)									
ES1326079-006	BB_MW03_0.9	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	16.8	16.6	0.8	0% - 50%
ES1326079-017	BL_SB02_1.75	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	19.6	20.9	6.4	0% - 20%
ED007: Exchangeable Cations (QC Lot: 3190614)									
ES1326079-001	BB_MW02_0.1	ED007: Exchangeable Calcium	----	0.1	meq/100g	22.1	21.1	5.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	2.6	2.6	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.3	0.3	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	25.1	23.9	4.7	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
ES1326079-010	BQ_MW11_3.8	ED007: Exchangeable Calcium	----	0.1	meq/100g	3.8	3.5	8.4	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	8.1	7.4	8.5	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.3	0.3	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	2.0	1.8	10.2	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	14.2	13.0	8.6	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 3193801)									
ES1326079-001	BB_MW02_0.1	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	100	140	30.0	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	15	13	13.7	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	7	5	34.9	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	13	10	25.7	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	8	14.2	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	6	16.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	9	19.6	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005T: Total Metals by ICP-AES (QC Lot: 3193801) - continued									
ES1326079-001	BB_MW02_0.1	EG005T: Manganese	7439-96-5	5	mg/kg	98	79	21.7	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	35	30	14.6	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	40	15	92.3	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
ES1326079-011	BQ_MW13_1.8	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	130	140	9.5	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	18	17	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	12	14	9.6	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	15	19	22.1	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	13	15	18.5	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	24	19	23.7	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	12	15	16.7	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	1230	1190	3.4	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	40	37	6.9	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	75	88	16.0	0% - 50%
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3193802)									
ES1326079-001	BB_MW02_0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326079-011	BQ_MW13_1.8	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP004: Organic Matter (QC Lot: 3192491)									
ES1325879-002	Anonymous	EP004: Organic Matter	----	0.5	%	0.6	0.6	0.0	No Limit
		EP004: Total Organic Carbon	----	0.5	%	<0.5	<0.5	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3190751)									
ES1326067-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326183-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3190722)									
ES1326079-009	BQ_MW08_3.9	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3190722) - continued									
ES1326079-009	BQ_MW08_3.9	EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 3190722)									
ES1326079-009	BQ_MW08_3.9	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3190722)									
ES1326079-009	BQ_MW08_3.9	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3190722)									
ES1326079-009	BQ_MW08_3.9	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3190722)									
ES1326079-009	BQ_MW08_3.9	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3190722) - continued									
ES1326079-009	BQ_MW08_3.9	EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 3190722)									
ES1326079-009	BQ_MW08_3.9	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP074G: Trihalomethanes (QC Lot: 3190722)									
ES1326079-009	BQ_MW08_3.9	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3190722)									
ES1326079-009	BQ_MW08_3.9	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3190750)									
ES1326079-001	BB_MW02_0.1	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1326079-011	BQ_MW13_1.8	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3190750) - continued									
ES1326079-011	BQ_MW13_1.8	EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3190750)									
ES1326079-001	BB_MW02_0.1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1326079-011	BQ_MW13_1.8	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3190750) - continued										
ES1326079-011	BQ_MW13_1.8	EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3190721)										
ES1326079-009	BQ_MW08_3.9	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1326079-011	BQ_MW13_1.8	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3190749)										
ES1326079-001	BB_MW02_0.1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
ES1326079-011	BQ_MW13_1.8	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3190721)										
ES1326079-009	BQ_MW08_3.9	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1326079-011	BQ_MW13_1.8	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3190749)										
ES1326079-001	BB_MW02_0.1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1326079-011	BQ_MW13_1.8	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
EP080: BTEXN (QC Lot: 3190721)										
ES1326079-009	BQ_MW08_3.9	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1326079-011	BQ_MW13_1.8	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EA032: Electrical Conductivity (saturated paste) (QCLot: 3191306)									
EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	<1	1412 µS/cm	100	96	104	
ED007: Exchangeable Cations (QCLot: 3190614)									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3193801)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	109	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	109	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	111	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	103	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	117	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	106	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	110	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	102	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	111	85	127	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	119	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	110	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	81.8	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	113	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	114	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	108	70	130	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3193802)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	73.3	66	112	
EP004: Organic Matter (QCLot: 3192491)									
EP004: Organic Matter	----	0.5	%	<0.5	4.58 %	97.8	85	105	
EP004: Total Organic Carbon	----	0.5	%	<0.5	2.66 %	97.7	84	106	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3190751)									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	110	57.4	117	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3190722)									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	80.5	64	126	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3190722) - continued									
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	82.6	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	81.0	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	83.6	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	85.8	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	82.5	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	84.9	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	83.4	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	81.0	61	131	
EP074B: Oxygenated Compounds (QCLot: 3190722)									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	43.1	29.6	156	
				<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	82.8	58	136	
				<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	70.0	54	138	
				<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	70.4	54	136	
				<5	----	----	----	----	
EP074C: Sulfonated Compounds (QCLot: 3190722)									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	54.0	54	126	
EP074D: Fumigants (QCLot: 3190722)									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	65.6	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	81.0	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	77.6	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	64.6	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	72.3	66	126	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3190722)									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	41.4	30	148	
				<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	61.1	41	141	
				<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	75.1	43	147	
				<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	61.8	47	141	
				<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	69.2	49	143	
				<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	72.0	49	135	
				<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	68.2	54	126	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3190722) - continued									
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	70.7	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	72.8	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	80.2	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	78.3	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	70.2	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	77.7	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	75.4	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	89.9	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	79.8	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	80.1	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	82.7	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	81.3	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	86.7	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	72.4	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	73.9	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	74.0	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	71.4	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	79.8	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	76.9	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	65.2	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	98.2	48	136	
EP074F: Halogenated Aromatic Compounds (QCLot: 3190722)									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	85.4	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	81.9	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	86.1	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	83.8	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	84.4	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	81.8	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	87.3	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	82.5	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	91.8	60	132	
EP074G: Trihalomethanes (QCLot: 3190722)									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	82.3	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	75.6	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	73.7	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	81.1	60	126	
EP074H: Naphthalene (QCLot: 3190722)									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	86.8	63	133	
		5	mg/kg	<5	----	----	----	----	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 3190750)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	87.2	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	90.5	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	88.2	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	91.0	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	79.8	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	86.6	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	86.3	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	87.7	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	78.5	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	78.6	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	81.3	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	21.1	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3190750)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	91.1	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	96.5	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	95.7	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	97.3	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	99.2	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	99.7	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	103	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	103	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	87.6	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	101	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	78.4	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	99.5	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	90.9	76	122	
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	82.5	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	81.2	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	81.5	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3190721)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	78.8	68.4	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3190749)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	107	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	116	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	102	64	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3190721)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	80.0	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3190749)									



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3190749) - continued								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	103	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	115	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
		50	mg/kg	----	150 mg/kg	84.8	63	131
EP080: BTEXN (QCLot: 3190721)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	82.2	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	88.3	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	89.4	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	86.4	60	120
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	94.1	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	97.6	62	138

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 3193801)							
ES1326079-001	BB_MW02_0.1	EG005T: Arsenic	7440-38-2	50 mg/kg	107	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	99.9	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	104	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	110	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	101	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	104	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	110	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	111	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3193802)							
ES1326079-001	BB_MW02_0.1	EG035T: Mercury	7439-97-6	5 mg/kg	83.3	70	130
EP004: Organic Matter (QCLot: 3192491)							
ES1325879-002	Anonymous	EP004: Organic Matter	----	0.47 %	98.5	----	----
		EP004: Total Organic Carbon	----	0.27 %	85.2	----	----
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3190751)							
ES1326067-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	96.0	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3190722)							
ES1326079-009	BQ_MW08_3.9	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	85.1	70	130



Sub-Matrix: SOIL				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3190722) - continued								
ES1326079-009	BQ_MW08_3.9	EP074: Trichloroethene	79-01-6	2.5 mg/kg	90.8	70	130	
EP074F: Halogenated Aromatic Compounds (QCLot: 3190722)								
ES1326079-009	BQ_MW08_3.9	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	96.3	70	130	
EP075(SIM)A: Phenolic Compounds (QCLot: 3190750)								
ES1326079-001	BB_MW02_0.1	EP075(SIM): Phenol	108-95-2	10 mg/kg	83.7	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	85.4	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	82.4	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	77.1	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	46.7	20	130	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3190750)								
ES1326079-001	BB_MW02_0.1	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	87.7	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	94.3	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3190721)								
ES1326079-009	BQ_MW08_3.9	EP080: C6 - C9 Fraction	----	32.5 mg/kg	92.1	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3190749)								
ES1326079-001	BB_MW02_0.1	EP071: C10 - C14 Fraction	----	640 mg/kg	83.5	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	85.8	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	70.8	52	132	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3190721)								
ES1326079-009	BQ_MW08_3.9	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	89.0	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3190749)								
ES1326079-001	BB_MW02_0.1	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	108	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	76.9	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	57.8	52	132	
EP080: BTEXN (QCLot: 3190721)								
ES1326079-009	BQ_MW08_3.9	EP080: Benzene	71-43-2	2.5 mg/kg	80.2	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	80.0	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	82.2	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	85.4	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	86.6	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	91.0	70	130		

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.



Sub-Matrix: SOIL					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number								
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3190721)											
ES1326079-009	BQ_MW08_3.9	EP080: C6 - C9 Fraction	----	32.5 mg/kg	92.1	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3190721)											
ES1326079-009	BQ_MW08_3.9	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	89.0	----	70	130	----	----	
EP080: BTEXN (QCLot: 3190721)											
ES1326079-009	BQ_MW08_3.9	EP080: Benzene	71-43-2	2.5 mg/kg	80.2	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	80.0	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	82.2	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	85.4	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	86.6	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	91.0	----	70	130	----	----	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3190722)											
ES1326079-009	BQ_MW08_3.9	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	85.1	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	90.8	----	70	130	----	----	
EP074F: Halogenated Aromatic Compounds (QCLot: 3190722)											
ES1326079-009	BQ_MW08_3.9	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	96.3	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3190749)											
ES1326079-001	BB_MW02_0.1	EP071: C10 - C14 Fraction	----	640 mg/kg	83.5	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	85.8	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	70.8	----	52	132	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3190749)											
ES1326079-001	BB_MW02_0.1	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	108	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	76.9	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	57.8	----	52	132	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3190750)											
ES1326079-001	BB_MW02_0.1	EP075(SIM): Phenol	108-95-2	10 mg/kg	83.7	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	85.4	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	82.4	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	77.1	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	46.7	----	20	130	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3190750)											
ES1326079-001	BB_MW02_0.1	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	87.7	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	94.3	----	70	130	----	----	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3190751)											
ES1326067-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	96.0	----	70	130	----	----	
EP004: Organic Matter (QCLot: 3192491)											
ES1325879-002	Anonymous	EP004: Organic Matter	----	0.47 %	98.5	----	----	----	----	----	



Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP004: Organic Matter (QCLot: 3192491) - continued										
ES1325879-002	Anonymous	EP004: Total Organic Carbon	----	0.27 %	85.2	----	----	----	----	----
EG005T: Total Metals by ICP-AES (QCLot: 3193801)										
ES1326079-001	BB_MW02_0.1	EG005T: Arsenic	7440-38-2	50 mg/kg	107	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	99.9	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	104	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	110	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	101	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	104	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	110	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	111	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3193802)										
ES1326079-001	BB_MW02_0.1	EG035T: Mercury	7439-97-6	5 mg/kg	83.3	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326079	Page	: 1 of 11
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 29-NOV-2013
C-O-C number	: ----	Issue Date	: 11-DEC-2013
Sampler	: SM	No. of samples received	: 28
Order number	: 0224193	No. of samples analysed	: 22
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA002 : pH (Soils)								
Soil Glass Jar - Unpreserved (EA002)								
BB_MW02_0.1, BB_MW01_0.1, BB_MW03_0.5, BB_MW05_3.0, BQ_MW08_3.9, BQ_MW13_1.8	BB_MW02_9.0, BB_MW01_2.3, BB_MW03_0.9, BB_MW04_0.5, BQ_MW11_3.8,	27-NOV-2013	04-DEC-2013	04-DEC-2013	✓	04-DEC-2013	04-DEC-2013	✓
EA032: Electrical Conductivity (saturated paste)								
Soil Glass Jar - Unpreserved (EA032)								
BB_MW02_0.1, BQ_MW11_3.8,	BQ_MW08_3.9, BQ_MW13_1.8	27-NOV-2013	----	----	----	04-DEC-2013	26-MAY-2014	✓
EA055: Moisture Content								
Soil Glass Jar - Unpreserved (EA055-103)								
BB_MW02_0.1, BB_MW01_0.1, BB_MW03_0.5, BB_MW05_3.0, BQ_MW08_3.9, BQ_MW13_1.8, BU_SB01_2.0, BL_MW04_1.55, BL_SB02_1.75,	BB_MW02_9.0, BB_MW01_2.3, BB_MW03_0.9, BB_MW04_0.5, BQ_MW11_3.8, BU_MW01_3.0, BU_SB02_2.5, BL_MW04_2.5, BL_SB02_2.7	27-NOV-2013	----	----	----	04-DEC-2013	11-DEC-2013	✓
EA150: Particle Sizing								
Snap Lock Bag (EA150)								
BB_MW02_0.1		27-NOV-2013	---	26-MAY-2014	----	11-DEC-2013	07-JUN-2014	✓
EA150: Soil Classification based on Particle Size								
Snap Lock Bag (EA150)								
BB_MW02_0.1		27-NOV-2013	---	26-MAY-2014	----	11-DEC-2013	07-JUN-2014	✓
EA150: Particle Sizing								
Snap Lock Bag (EA150H)								
BU_MW02_4.0		27-NOV-2013	---	26-MAY-2014	----	10-DEC-2013	26-MAY-2014	✓



Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA150: Soil Classification based on Particle Size								
Snap Lock Bag (EA150H)								
BU_MW02_4.0	27-NOV-2013	---	26-MAY-2014	----	10-DEC-2013	26-MAY-2014	✓	
ED007: Exchangeable Cations								
Soil Glass Jar - Unpreserved (ED007)								
BB_MW02_0.1, BB_MW01_0.1, BB_MW03_0.5, BB_MW05_3.0, BQ_MW08_3.9, BQ_MW13_1.8	BB_MW02_9.0, BB_MW01_2.3, BB_MW03_0.9, BB_MW04_0.5, BQ_MW11_3.8	27-NOV-2013	03-DEC-2013	25-DEC-2013	✓	06-DEC-2013	25-DEC-2013	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
BB_MW02_0.1, BB_MW01_0.1, BB_MW03_0.5, BB_MW05_3.0, BQ_MW08_3.9, BQ_MW13_1.8, BU_SB01_2.0, BL_MW04_1.55,	BB_MW02_9.0, BB_MW01_2.3, BB_MW03_0.9, BB_MW04_0.5, BQ_MW11_3.8, BU_MW01_3.0, BU_SB02_2.5, BL_SB02_1.75	27-NOV-2013	04-DEC-2013	26-MAY-2014	✓	05-DEC-2013	26-MAY-2014	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
BB_MW02_0.1, BB_MW01_0.1, BB_MW03_0.5, BB_MW05_3.0, BQ_MW08_3.9, BQ_MW13_1.8, BU_SB01_2.0, BL_MW04_1.55,	BB_MW02_9.0, BB_MW01_2.3, BB_MW03_0.9, BB_MW04_0.5, BQ_MW11_3.8, BU_MW01_3.0, BU_SB02_2.5, BL_SB02_1.75	27-NOV-2013	04-DEC-2013	25-DEC-2013	✓	06-DEC-2013	25-DEC-2013	✓
EP004: Organic Matter								
Soil Glass Jar - Unpreserved (EP004)								
BB_MW02_0.1		27-NOV-2013	04-DEC-2013	25-DEC-2013	✓	04-DEC-2013	25-DEC-2013	✓
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066)								
BL_MW04_2.5,	BL_SB02_2.7	27-NOV-2013	04-DEC-2013	11-DEC-2013	✓	05-DEC-2013	13-JAN-2014	✓



Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Soil Glass Jar - Unpreserved (EP071)								
BB_MW02_0.1, BB_MW01_0.1, BB_MW03_0.5, BB_MW05_3.0, BQ_MW08_3.9, BQ_MW13_1.8, BU_SB01_2.0, BL_MW04_1.55,	BB_MW02_9.0, BB_MW01_2.3, BB_MW03_0.9, BB_MW04_0.5, BQ_MW11_3.8, BU_MW01_3.0, BU_SB02_2.5, BL_SB02_1.75	27-NOV-2013	03-DEC-2013	11-DEC-2013	✓	05-DEC-2013	12-JAN-2014	✓
EP074D: Fumigants								
Soil Glass Jar - Unpreserved (EP074)								
BQ_MW08_3.9, BQ_MW13_1.8, BU_SB01_2.0, BL_MW04_1.55,	BQ_MW11_3.8, BU_MW01_3.0, BU_SB02_2.5, BL_SB02_1.75	27-NOV-2013	03-DEC-2013	04-DEC-2013	✓	04-DEC-2013	04-DEC-2013	✓
EP074E: Halogenated Aliphatic Compounds								
Soil Glass Jar - Unpreserved (EP074)								
BQ_MW08_3.9, BQ_MW13_1.8, BU_SB01_2.0, BL_MW04_1.55,	BQ_MW11_3.8, BU_MW01_3.0, BU_SB02_2.5, BL_SB02_1.75	27-NOV-2013	03-DEC-2013	04-DEC-2013	✓	04-DEC-2013	04-DEC-2013	✓
EP074F: Halogenated Aromatic Compounds								
Soil Glass Jar - Unpreserved (EP074)								
BQ_MW08_3.9, BQ_MW13_1.8, BU_SB01_2.0, BL_MW04_1.55,	BQ_MW11_3.8, BU_MW01_3.0, BU_SB02_2.5, BL_SB02_1.75	27-NOV-2013	03-DEC-2013	04-DEC-2013	✓	04-DEC-2013	04-DEC-2013	✓
EP074A: Monocyclic Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP074)								
BQ_MW08_3.9, BQ_MW13_1.8, BU_SB01_2.0, BL_MW04_1.55,	BQ_MW11_3.8, BU_MW01_3.0, BU_SB02_2.5, BL_SB02_1.75	27-NOV-2013	03-DEC-2013	04-DEC-2013	✓	04-DEC-2013	04-DEC-2013	✓
EP074H: Naphthalene								
Soil Glass Jar - Unpreserved (EP074)								
BQ_MW08_3.9, BQ_MW13_1.8, BU_SB01_2.0, BL_MW04_1.55,	BQ_MW11_3.8, BU_MW01_3.0, BU_SB02_2.5, BL_SB02_1.75	27-NOV-2013	03-DEC-2013	04-DEC-2013	✓	04-DEC-2013	04-DEC-2013	✓



Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074) BQ_MW08_3.9, BQ_MW13_1.8, BU_SB01_2.0, BL_MW04_1.55, BQ_MW11_3.8, BU_MW01_3.0, BU_SB02_2.5, BL_SB02_1.75	27-NOV-2013	03-DEC-2013	04-DEC-2013	✓	04-DEC-2013	04-DEC-2013	✓
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved (EP074) BQ_MW08_3.9, BQ_MW13_1.8, BU_SB01_2.0, BL_MW04_1.55, BQ_MW11_3.8, BU_MW01_3.0, BU_SB02_2.5, BL_SB02_1.75	27-NOV-2013	03-DEC-2013	04-DEC-2013	✓	04-DEC-2013	04-DEC-2013	✓
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074) BQ_MW08_3.9, BQ_MW13_1.8, BU_SB01_2.0, BL_MW04_1.55, BQ_MW11_3.8, BU_MW01_3.0, BU_SB02_2.5, BL_SB02_1.75	27-NOV-2013	03-DEC-2013	04-DEC-2013	✓	04-DEC-2013	04-DEC-2013	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) BB_MW02_0.1, BB_MW01_0.1, BB_MW03_0.5, BB_MW05_3.0, BQ_MW08_3.9, BQ_MW13_1.8, BU_SB01_2.0, BL_MW04_1.55, BB_MW02_9.0, BB_MW01_2.3, BB_MW03_0.9, BB_MW04_0.5, BQ_MW11_3.8, BU_MW01_3.0, BU_SB02_2.5, BL_SB02_1.75	27-NOV-2013	03-DEC-2013	11-DEC-2013	✓	05-DEC-2013	12-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) BB_MW02_0.1, BB_MW01_0.1, BB_MW03_0.5, BB_MW05_3.0, BQ_MW08_3.9, BQ_MW13_1.8, BU_SB01_2.0, BL_MW04_1.55, BB_MW02_9.0, BB_MW01_2.3, BB_MW03_0.9, BB_MW04_0.5, BQ_MW11_3.8, BU_MW01_3.0, BU_SB02_2.5, BL_SB02_1.75	27-NOV-2013	03-DEC-2013	11-DEC-2013	✓	05-DEC-2013	12-JAN-2014	✓



Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) ERM TRIP SPIKE2,	BLANK TRIP	22-NOV-2013	03-DEC-2013	06-DEC-2013	✓	04-DEC-2013	06-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) BB_MW02_0.1, BB_MW01_0.1, BB_MW03_0.5, BB_MW05_3.0, BQ_MW08_3.9, BQ_MW13_1.8, BU_SB01_2.0, BL_MW04_1.55, TSC	BB_MW02_9.0, BB_MW01_2.3, BB_MW03_0.9, BB_MW04_0.5, BQ_MW11_3.8, BU_MW01_3.0, BU_SB02_2.5, BL_SB02_1.75, TSC	27-NOV-2013	03-DEC-2013	11-DEC-2013	✓	04-DEC-2013	11-DEC-2013	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080) ERM TRIP SPIKE2,	BLANK TRIP	22-NOV-2013	03-DEC-2013	06-DEC-2013	✓	04-DEC-2013	06-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) BB_MW02_0.1, BB_MW01_0.1, BB_MW03_0.5, BB_MW05_3.0, BQ_MW08_3.9, BQ_MW13_1.8, BU_SB01_2.0, BL_MW04_1.55, TSC	BB_MW02_9.0, BB_MW01_2.3, BB_MW03_0.9, BB_MW04_0.5, BQ_MW11_3.8, BU_MW01_3.0, BU_SB02_2.5, BL_SB02_1.75, TSC	27-NOV-2013	03-DEC-2013	11-DEC-2013	✓	04-DEC-2013	11-DEC-2013	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Electrical Conductivity (Saturated Paste)	EA032	2	11	18.2	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	2	11	18.2	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	4	40	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Organic Matter	EP004	1	8	12.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	18	11.1	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	11	18.2	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	19	10.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	18	11.1	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	19	10.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Electrical Conductivity (Saturated Paste)	EA032	1	11	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	11	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Organic Matter	EP004	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Electrical Conductivity (Saturated Paste)	EA032	1	11	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	11	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Organic Matter	EP004	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Organic Matter	EP004	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **SOIL** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<i>Analytical Methods</i>							
Matrix Spikes (MS) - Continued							
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Electrical Conductivity (Saturated Paste)	EA032	SOIL	USEPA 600/2 - 78 - 054 - conductivity determined on a saturated paste.
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis (Sieving)	EA150	SOIL	Particle Size Analysis by Sieving according to AS1289.3.6.1 - 2009
Particle Size Analysis by Hydrometer	EA150H	SOIL	Particle Size Analysis by Hydrometer according to AS1289.3.6.3 - 2003
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Organic Matter	EP004	SOIL	AS1289.4.1.1 - 1997., Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM (2013) Schedule B(3) (Method 105)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatle Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
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Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH ₄ Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Organic Matter	EP004-PR	SOIL	AS1289.4.1.1 - 1997., Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM (2013) Schedule B(3) (Method 105)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na ₂ SO ₄ and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-



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TURNAROUND REQUIREMENTS:

Standard (AT may be longer for some tests e.g. Non Standard or region TAT (List due date))

CLIENT: ERM
PROJECT: Sydney
ORDER NUMBER: 0224193
PROJECT MANAGER: J. Fernley
SAMPLER: Asbestos Matrix

CONTACT PH: 0434181414
SAMPLER MOBILE: 0434181414
EDS FORMAT (or default):

PRELIMINARY BY: [Signature]
DATE/TIME: 29/11/13

RECEIVED BY: [Signature]
DATE/TIME: 29/11/13

RECEIVED BY: [Signature]
DATE/TIME: 29/11/13

RECEIVED BY: [Signature]
DATE/TIME: 29/11/13

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)	CONTAINER INFORMATION	ANALYSIS REQUIRED including SUITES (N/A, Sole Code must be listed in client suite code) Where blank are required, specify Total (unfiltered) or Dissolved (filtered) as appropriate.	Additional Information				
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (add; below)	refer to	TOTAL CONTAINERS		
1	BA_S0_22_00	26-11-13	soil			1		
2	BA_SU_23_00					1		
3	BA_SU_24_00					1		
4	BA_SU_25_00					1		
5	BA_SU_26_00					1		
6	BA_SU_27_00					1		
7	BA_SU_28_00					1		
8	BA_SU03_00					1		
9	BA_SU04_00					1		
10	BA_SU05_00					1		
11	BA_SU06_00					1		
12	BA_SU07_00					1		

5-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B, Mo, Ti, Se)
S-24 TSHIC-C40/BTEXN, PAH, Phenols
VOC Target Scan
PCB
pH (1:5)
Exchangeable cations (ED007)
PFOS/PFOA
Asbestos (absence/presence)
Particle Sizing to 75µm (Sieve)
Organic Matter plus Total Organic Carbon (EP004)

Comments on likely contaminant levels, dilutions, or samples requiring specific COC analysis etc.

Environmental Division
Sydney
Work Order
ES1326238

Subsidiary / Analysis: Asbestos
Organised By / Date:
Relinquished By / Date:
Comments / Courier:
WO No:
Attach By PO / Internal Sheet:

Water Contaminant Codes: P = Unpreserved Plastic; K = Nitrate Preserved Plastic; GPC = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved; V = VOA Via Hot Preservation; VA = VOA Via Sodium Bicarbonate Preserved; VS = VOA Via Sulfuric Preservation; AV = Atrazine/Unpreserved VOA SG = Sulfate Preserved Amber GL
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Solids; ST = Strontium Bottle; ASD = Plastic form for Acid Solubility Solids; U = Unpreserved Bag

Water Contaminant Codes: P = Unpreserved Plastic; K = Nitrate Preserved Plastic; GPC = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved; V = VOA Via Hot Preservation; VA = VOA Via Sodium Bicarbonate Preserved; VS = VOA Via Sulfuric Preservation; AV = Atrazine/Unpreserved VOA SG = Sulfate Preserved Amber GL
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Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Solids; ST = Strontium Bottle; ASD = Plastic form for Acid Solubility Solids; U = Unpreserved Bag

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Water Contaminant Codes: P = Unpreserved Plastic; K = Nitrate Preserved Plastic; GPC = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved; V = VOA Via Hot Preservation; VA = VOA Via Sodium Bicarbonate Preserved; VS = VOA Via Sulfuric Preservation; AV = Atrazine/Unpreserved VOA SG = Sulfate Preserved Amber GL
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Solids; ST = Strontium Bottle; ASD = Plastic form for Acid Solubility Solids; U = Unpreserved Bag

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Lab Use: This Chain of Custody Form is for use by ALS Laboratory only.
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CLIENT: ESM TURNAROUND REQUIREMENTS: Standard TAT (Lit due date) Non Standard or Urgent TAT (Lit due date)

OFFICER: Sydney (Standard TAT may be longer for some tests e.g. Ultra Trace elements)

PROJECT: Pacific Symphony ALS QUOTE NO.: SYT2222

ORDER NUMBER: 02294193 SITE: BAYSWATER SUBJECT

PROJECT MANAGER: S. Jernag CONTACT FRI: 0434181414

SAMPLER: A. Harris SAMPLER MODEL: 0434181414 RELINQUISHED BY: [Signature]

COC emailed to ALS? (YES/NO): NO EDD FORMAT (or default): DATE/TIME

Email Reports to (will default to PM if no other addresses are listed): anna.morris@parra.com

Email Invoice to (will default to PM if no other addresses are listed): john.earl@parra.com

COMMENT/SPECIAL HANDLING/STORAGE OR DISPOSAL: symphony madgen@esm.com

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)	CONTAINER INFORMATION	ANALYSIS REQUIRED including SITES (NB: Some Codes must be ticked to avoid state price where ticked not required, specify Total (unfiltered) bottle required) or Discreet (dial method) bottle required.		Additional Information																
			LAB ID	SAMPLE ID		DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	(refer to)	TOTAL CONTAINERS	S-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B, Mo, Ti, Se)	S-24 TRH(C6-C40)BTXN, PAH, Phenols	VOC Target Scan	PCB	pH (1:5)	Exchangeable cations (ED007)	PFOS/PFOA	Asbestos (absence/presence)	Particle Sizing to 75µm (Sieve)	Organic Matter plus Total Organic Carbon (EP004)
			13	BQ-SU08-0.0	26-11-13	SOIL			1												Potential Asbestos lines in sample
			14	BQ-SU09-0.0					1												
			15	BQ-SU10-0.0					1												
			16	BQ-SU11-0.0	27-11-13				1												
			17	BQ-SU12-0.0					1												
			18	BQ-SU13-0.0					1												
			19	BQ-SU14-0.0					1												
			20	BQ-SU15-0.0					1												
			21	BQ-SU16-0.0					1												
			22	BQ-SU17-0.0					1												
			23	BQ-SU18-0.0					1												
			24	BQ-SU19-0.0					1												

RECEIVED BY: [Signature] DATE/TIME: 29/11/13

Water Contaminant Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; C = Sodium Hydroxide Preserved Plastic; AC = Amber Glass Unpreserved Plastic; AUP = Airtight Unpreserved Plastic; V = VOA Vol PCB Preserved; VB = VOA Vol Sulphur Preserved; VS = VOA Vol Sulphur Preserved; AV = Airtight Unpreserved Vol SQ = Sulphur Preserved Amber Glass; H = HCl Preserved Plastic; HB = HCl Preserved Specimen Bottle; SP = Sulphur Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Strontium Chloride; ASS = Plastic Bin for Acid Sulphate Solids; U = Unpreserved Bin



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CLIENT: ERM TURNAROUND REQUIREMENTS: Standard TAT (last due date) Non Standard or urgent TAT (last due date)

OFFICE: Sydney ALS QUOTE NO: SV79413 COC SEQUENCE NUMBER (Circle) 1 2 3 4 5 6 7

PROJECT: Project Sydney ORDER NUMBER: 0294103 PROJECT MANAGER: J. Ferris CONTACT PR: 11111 RELINQUISHED BY: 11111

SAMPLER: A. Ferris SMOG: 11111 DATE/TIME: 11111 RELINQUISHED BY: 11111

COC emailed to ALS? YES / NO EDD FORMAT (or default): 11111 DATE/TIME: 11111

Email Reports to (will default to PM if no other addresses are listed): John.ash@erm.com DATE/TIME: 11111

Email Invoice to (will default to PM if no other addresses are listed): John.ash@erm.com DATE/TIME: 11111

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: Synphony and per ERM.com

ALS USE	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (concs below)	CONTAINER INFORMATION	ANALYSIS REQUIRED INCLUDING SUITES (Nil, Suite Code must be listed to attract suite price) Where suitable sites required, specify Total (unfilled cells required) or Discovered (filled filled cells required).											Additional Information								
						S-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, S, Mo, Ti, Se)	S-24 TRH (C6-C40) BTEXH, PAH, Phenols	VOC Target Scan	PCB	pH (1:5)	Exchangeable cations (ED07)	PFOS/PFOA	Asbestos (absence/presence)	Particle Sizing to 75µm (Sieve)	Organic Matter plus Total Organic Carbon (EP004)		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.							
	25	BA-SU02-0.0	SOIL	1 Plastic Bag																					
	26	BA-SU21-0.0																							
	27	BA-SU29-0.0																							
	28	BA-SU30-0.0																							
	29	BA-SU31-0.0																							
	30	BA-SU32-0.0																							
	31	BA-SU01-0.0																							
	32	BA-SU02-0.0																							

32

32

Major Contaminant Codes: P = Unprotected Pesticide; N = Nitrate Fertiliser; GPC = Glass; M = Microbial; H = Hydrocarbon; S = Sulphate; T = Total; C = Chloride; A = Ammonia; U = Unprotected; V = Volatile; W = Water; X = X-ray; Y = Yellows; Z = Zinc; AA = Acid; AB = Alkaline; AC = Acid Chloride; AD = Acid Diphosphate; AE = Acid Phosphate; AF = Acid Sulfate; AG = Acid Sulfate; AH = Acid Sulfate; AI = Acid Sulfate; AJ = Acid Sulfate; AK = Acid Sulfate; AL = Acid Sulfate; AM = Acid Sulfate; AN = Acid Sulfate; AO = Acid Sulfate; AP = Acid Sulfate; AQ = Acid Sulfate; AR = Acid Sulfate; AS = Acid Sulfate; AT = Acid Sulfate; AU = Acid Sulfate; AV = Acid Sulfate; AW = Acid Sulfate; AX = Acid Sulfate; AY = Acid Sulfate; AZ = Acid Sulfate; BA = Barium; BB = Barium; BC = Barium; BD = Barium; BE = Barium; BF = Barium; BG = Barium; BH = Barium; BI = Barium; BJ = Barium; BK = Barium; BL = Barium; BM = Barium; BN = Barium; BO = Barium; BP = Barium; BQ = Barium; BR = Barium; BS = Barium; BT = Barium; BU = Barium; BV = Barium; BW = Barium; BX = Barium; BY = Barium; BZ = Barium; CA = Calcium; CB = Calcium; CC = Calcium; CD = Calcium; CE = Calcium; CF = Calcium; CG = Calcium; CH = Calcium; CI = Calcium; CJ = Calcium; CK = Calcium; CL = Calcium; CM = Calcium; CN = Calcium; CO = Calcium; CP = Calcium; CQ = Calcium; CR = Calcium; CS = Calcium; CT = Calcium; CU = Calcium; CV = Calcium; CW = Calcium; CX = Calcium; CY = Calcium; CZ = Calcium; DA = Deuterium; DB = Deuterium; DC = Deuterium; DD = Deuterium; DE = Deuterium; DF = Deuterium; DG = Deuterium; DH = Deuterium; DI = Deuterium; DJ = Deuterium; DK = Deuterium; DL = Deuterium; DM = Deuterium; DN = Deuterium; DO = Deuterium; DP = Deuterium; DQ = Deuterium; DR = Deuterium; DS = Deuterium; DT = Deuterium; DU = Deuterium; DV = Deuterium; DW = Deuterium; DX = Deuterium; DY = Deuterium; DZ = Deuterium; EA = Ethanol; EB = Ethanol; EC = Ethanol; ED = Ethanol; EE = Ethanol; EF = Ethanol; EG = Ethanol; EH = Ethanol; EI = Ethanol; EJ = Ethanol; EK = Ethanol; EL = Ethanol; EM = Ethanol; EN = Ethanol; EO = Ethanol; EP = Ethanol; EQ = Ethanol; ER = Ethanol; ES = Ethanol; ET = Ethanol; EU = Ethanol; EV = Ethanol; EW = Ethanol; EX = Ethanol; EY = Ethanol; EZ = Ethanol; FA = Fluoride; FB = Fluoride; FC = Fluoride; FD = Fluoride; FE = Fluoride; FF = Fluoride; FG = Fluoride; FH = Fluoride; FI = Fluoride; FJ = Fluoride; FK = Fluoride; FL = Fluoride; FM = Fluoride; FN = Fluoride; FO = Fluoride; FP = Fluoride; FQ = Fluoride; FR = Fluoride; FS = Fluoride; FT = Fluoride; FU = Fluoride; FV = Fluoride; FW = Fluoride; FX = Fluoride; FY = Fluoride; FZ = Fluoride; GA = Gallium; GB = Gallium; GC = Gallium; GD = Gallium; GE = Gallium; GF = Gallium; GG = Gallium; GH = Gallium; GI = Gallium; GJ = Gallium; GK = Gallium; GL = Gallium; GM = Gallium; GN = Gallium; GO = Gallium; GP = Gallium; GQ = Gallium; GR = Gallium; GS = Gallium; GT = Gallium; GU = Gallium; GV = Gallium; GW = Gallium; GX = Gallium; GY = Gallium; GZ = Gallium; HA = Hydrogen; HB = Hydrogen; HC = Hydrogen; HD = Hydrogen; HE = Hydrogen; HF = Hydrogen; HG = Hydrogen; HH = Hydrogen; HI = Hydrogen; HJ = Hydrogen; HK = Hydrogen; HL = Hydrogen; HM = Hydrogen; HN = Hydrogen; HO = Hydrogen; HP = Hydrogen; HQ = Hydrogen; HR = Hydrogen; HS = Hydrogen; HT = Hydrogen; HU = Hydrogen; HV = Hydrogen; HW = Hydrogen; HX = Hydrogen; HY = Hydrogen; HZ = Hydrogen; IA = Iodine; IB = Iodine; IC = Iodine; ID = Iodine; IE = Iodine; IF = Iodine; IG = Iodine; IH = Iodine; II = Iodine; IJ = Iodine; IK = Iodine; IL = Iodine; IM = Iodine; IN = Iodine; IO = Iodine; IP = Iodine; IQ = Iodine; IR = Iodine; IS = Iodine; IT = Iodine; IU = Iodine; IV = Iodine; IW = Iodine; IX = Iodine; IY = Iodine; IZ = Iodine; JA = Jargon; JB = Jargon; JC = Jargon; JD = Jargon; JE = Jargon; JF = Jargon; JG = Jargon; JH = Jargon; JI = Jargon; JJ = Jargon; JK = Jargon; JL = Jargon; JM = Jargon; JN = Jargon; JO = Jargon; JP = Jargon; JQ = Jargon; JR = Jargon; JS = Jargon; JT = Jargon; JU = Jargon; JV = Jargon; JW = Jargon; JX = Jargon; JY = Jargon; JZ = Jargon; KA = Krypton; KB = Krypton; KC = Krypton; KD = Krypton; KE = Krypton; KF = Krypton; KG = Krypton; KH = Krypton; KI = Krypton; KJ = Krypton; KK = Krypton; KL = Krypton; KM = Krypton; KN = Krypton; KO = Krypton; KP = Krypton; KQ = Krypton; KR = Krypton; KS = Krypton; KT = Krypton; KU = Krypton; KV = Krypton; KW = Krypton; KX = Krypton; KY = Krypton; KZ = Krypton; LA = Lead; LB = Lead; LC = Lead; LD = Lead; LE = Lead; LF = Lead; LG = Lead; LH = Lead; LI = Lead; LJ = Lead; LK = Lead; LL = Lead; LM = Lead; LN = Lead; LO = Lead; LP = Lead; LQ = Lead; LR = Lead; LS = Lead; LT = Lead; LU = Lead; LV = Lead; LW = Lead; LX = Lead; LY = Lead; LZ = Lead; MA = Manganese; MB = Manganese; MC = Manganese; MD = Manganese; ME = Manganese; MF = Manganese; MG = Manganese; MH = Manganese; MI = Manganese; MJ = Manganese; MK = Manganese; ML = Manganese; MM = Manganese; MN = Manganese; MO = Manganese; MP = Manganese; MQ = Manganese; MR = Manganese; MS = Manganese; MT = Manganese; MU = Manganese; MV = Manganese; MW = Manganese; MX = Manganese; MY = Manganese; MZ = Manganese; NA = Neon; NB = Neon; NC = Neon; ND = Neon; NE = Neon; NF = Neon; NG = Neon; NH = Neon; NI = Neon; NJ = Neon; NK = Neon; NL = Neon; NM = Neon; NN = Neon; NO = Neon; NP = Neon; NQ = Neon; NR = Neon; NS = Neon; NT = Neon; NU = Neon; NV = Neon; NW = Neon; NX = Neon; NY = Neon; NZ = Neon; OA = Oxygen; OB = Oxygen; OC = Oxygen; OD = Oxygen; OE = Oxygen; OF = Oxygen; OG = Oxygen; OH = Oxygen; OI = Oxygen; OJ = Oxygen; OK = Oxygen; OL = Oxygen; OM = Oxygen; ON = Oxygen; OO = Oxygen; OP = Oxygen; OQ = Oxygen; OR = Oxygen; OS = Oxygen; OT = Oxygen; OU = Oxygen; OV = Oxygen; OW = Oxygen; OX = Oxygen; OY = Oxygen; OZ = Oxygen; PA = Phosphorus; PB = Phosphorus; PC = Phosphorus; PD = Phosphorus; PE = Phosphorus; PF = Phosphorus; PG = Phosphorus; PH = Phosphorus; PI = Phosphorus; PJ = Phosphorus; PK = Phosphorus; PL = Phosphorus; PM = Phosphorus; PN = Phosphorus; PO = Phosphorus; PP = Phosphorus; PQ = Phosphorus; PR = Phosphorus; PS = Phosphorus; PT = Phosphorus; PU = Phosphorus; PV = Phosphorus; PW = Phosphorus; PX = Phosphorus; PY = Phosphorus; PZ = Phosphorus; QA = Quaternary; QB = Quaternary; QC = Quaternary; QD = Quaternary; QE = Quaternary; QF = Quaternary; QG = Quaternary; QH = Quaternary; QI = Quaternary; QJ = Quaternary; QK = Quaternary; QL = Quaternary; QM = Quaternary; QN = Quaternary; QO = Quaternary; QP = Quaternary; QQ = Quaternary; QR = Quaternary; QS = Quaternary; QT = Quaternary; QU = Quaternary; QV = Quaternary; QW = Quaternary; QX = Quaternary; QY = Quaternary; QZ = Quaternary; RA = Radium; RB = Radium; RC = Radium; RD = Radium; RE = Radium; RF = Radium; RG = Radium; RH = Radium; RI = Radium; RJ = Radium; RK = Radium; RL = Radium; RM = Radium; RN = Radium; RO = Radium; RP = Radium; RQ = Radium; RR = Radium; RS = Radium; RT = Radium; RU = Radium; RV = Radium; RW = Radium; RX = Radium; RY = Radium; RZ = Radium; SA = Sulfur; SB = Sulfur; SC = Sulfur; SD = Sulfur; SE = Sulfur; SF = Sulfur; SG = Sulfur; SH = Sulfur; SI = Sulfur; SJ = Sulfur; SK = Sulfur; SL = Sulfur; SM = Sulfur; SN = Sulfur; SO = Sulfur; SP = Sulfur; SQ = Sulfur; SR = Sulfur; SS = Sulfur; ST = Sulfur; SU = Sulfur; SV = Sulfur; SW = Sulfur; SX = Sulfur; SY = Sulfur; SZ = Sulfur; TA = Tellurium; TB = Tellurium; TC = Tellurium; TD = Tellurium; TE = Tellurium; TF = Tellurium; TG = Tellurium; TH = Tellurium; TI = Tellurium; TJ = Tellurium; TK = Tellurium; TL = Tellurium; TM = Tellurium; TN = Tellurium; TO = Tellurium; TP = Tellurium; TQ = Tellurium; TR = Tellurium; TS = Tellurium; TT = Tellurium; TU = Tellurium; TV = Tellurium; TW = Tellurium; TX = Tellurium; TY = Tellurium; TZ = Tellurium; UA = Uranium; UB = Uranium; UC = Uranium; UD = Uranium; UE = Uranium; UF = Uranium; UG = Uranium; UH = Uranium; UI = Uranium; UJ = Uranium; UK = Uranium; UL = Uranium; UM = Uranium; UN = Uranium; UO = Uranium; UP = Uranium; UQ = Uranium; UR = Uranium; US = Uranium; UT = Uranium; UY = Uranium; UV = Uranium; UW = Uranium; UX = Uranium; UZ = Uranium; VA = Vanadium; VB = Vanadium; VC = Vanadium; VD = Vanadium; VE = Vanadium; VF = Vanadium; VG = Vanadium; VH = Vanadium; VI = Vanadium; VJ = Vanadium; VK = Vanadium; VL = Vanadium; VM = Vanadium; VN = Vanadium; VO = Vanadium; VP = Vanadium; VQ = Vanadium; VR = Vanadium; VS = Vanadium; VT = Vanadium; VU = Vanadium; VV = Vanadium; VW = Vanadium; VX = Vanadium; VY = Vanadium; VZ = Vanadium; WA = Xenon; WB = Xenon; WC = Xenon; WD = Xenon; WE = Xenon; WF = Xenon; WG = Xenon; WH = Xenon; WI = Xenon; WJ = Xenon; WK = Xenon; WL = Xenon; WM = Xenon; WN = Xenon; WO = Xenon; WP = Xenon; WQ = Xenon; WR = Xenon; WS = Xenon; WT = Xenon; WU = Xenon; WV = Xenon; WW = Xenon; WX = Xenon; WY = Xenon; WZ = Xenon; XA = Xenon; XB = Xenon; XC = Xenon; XD = Xenon; XE = Xenon; XF = Xenon; XG = Xenon; XH = Xenon; XI = Xenon; XJ = Xenon; XK = Xenon; XL = Xenon; XM = Xenon; XN = Xenon; XO = Xenon; XP = Xenon; XQ = Xenon; XR = Xenon; XS = Xenon; XT = Xenon; XU = Xenon; XV = Xenon; XW = Xenon; XX = Xenon; XY = Xenon; XZ = Xenon; YA = Yttrium; YB = Yttrium; YC = Yttrium; YD = Yttrium; YE = Yttrium; YF = Yttrium; YG = Yttrium; YH = Yttrium; YI = Yttrium; YJ = Yttrium; YK = Yttrium; YL = Yttrium; YM = Yttrium; YN = Yttrium; YO = Yttrium; YP = Yttrium; YQ = Yttrium; YR = Yttrium; YS = Yttrium; YT = Yttrium; YU = Yttrium; YV = Yttrium; YW = Yttrium; YX = Yttrium; YZ = Yttrium; ZA = Zinc; ZB = Zinc; ZC = Zinc; ZD = Zinc; ZE = Zinc; ZF = Zinc; ZG = Zinc; ZH = Zinc; ZI = Zinc; ZJ = Zinc; ZK = Zinc; ZL = Zinc; ZM = Zinc; ZN = Zinc; ZO = Zinc; ZP = Zinc; ZQ = Zinc; ZR = Zinc; ZS = Zinc; ZT = Zinc; ZU = Zinc; ZV = Zinc; ZW = Zinc; ZX = Zinc; ZY = Zinc; ZZ = Zinc.

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: ES1326238		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	Page	: 1 of 3
Order number	: 0224193	Quote number	: ES2013ENVRES0369 (SY/794/13)
C-O-C number	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER		
Sampler	: AM		

Dates

Date Samples Received	: 29-NOV-2013	Issue Date	: 04-DEC-2013 08:24
Client Requested Due Date	: 09-DEC-2013	Scheduled Reporting Date	: 09-DEC-2013

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 4.7°C SYD - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 32
Security Seal	: Intact.	No. of samples analysed	: 32

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA200 Asbestos Identification in Soils
ES1326238-001	26-NOV-2013 15:00	BQ_SU22_0.0	✓
ES1326238-002	26-NOV-2013 15:00	BQ_SU23_0.0	✓
ES1326238-003	26-NOV-2013 15:00	BQ_SU24_0.0	✓
ES1326238-004	26-NOV-2013 15:00	BQ_SU25_0.0	✓
ES1326238-005	26-NOV-2013 15:00	BQ_SU26_0.0	✓
ES1326238-006	26-NOV-2013 15:00	BQ_SU27_0.0	✓
ES1326238-007	26-NOV-2013 15:00	BQ_SU28_0.0	✓
ES1326238-008	26-NOV-2013 15:00	BQ_SU03_0.0	✓
ES1326238-009	26-NOV-2013 15:00	BQ_SU04_0.0	✓
ES1326238-010	26-NOV-2013 15:00	BQ_SU05_0.0	✓
ES1326238-011	26-NOV-2013 15:00	BQ_SU06_0.0	✓
ES1326238-012	26-NOV-2013 15:00	BQ_SU07_0.0	✓
ES1326238-013	26-NOV-2013 15:00	BQ_SU08_0.0	✓
ES1326238-014	26-NOV-2013 15:00	BQ_SU09_0.0	✓
ES1326238-015	26-NOV-2013 15:00	BQ_SU10_0.0	✓
ES1326238-016	27-NOV-2013 15:00	BQ_SU11_0.0	✓
ES1326238-017	27-NOV-2013 15:00	BQ_SU12_0.0	✓
ES1326238-018	27-NOV-2013 15:00	BQ_SU13_0.0	✓
ES1326238-019	27-NOV-2013 15:00	BQ_SU14_0.0	✓
ES1326238-020	27-NOV-2013 15:00	BQ_SU15_0.0	✓
ES1326238-021	27-NOV-2013 15:00	BQ_SU16_0.0	✓
ES1326238-022	27-NOV-2013 15:00	BQ_SU17_0.0	✓
ES1326238-023	27-NOV-2013 15:00	BQ_SU18_0.0	✓
ES1326238-024	27-NOV-2013 15:00	BQ_SU19_0.0	✓
ES1326238-025	27-NOV-2013 15:00	BQ_SU20_0.0	✓
ES1326238-026	27-NOV-2013 15:00	BQ_SU21_0.0	✓
ES1326238-027	27-NOV-2013 15:00	BQ_SU29_0.0	✓
ES1326238-028	27-NOV-2013 15:00	BQ_SU30_0.0	✓
ES1326238-029	27-NOV-2013 15:00	BQ_SU31_0.0	✓
ES1326238-030	27-NOV-2013 15:00	BQ_SU32_0.0	✓
ES1326238-031	27-NOV-2013 15:00	BQ_SU01_0.0	✓
ES1326238-032	27-NOV-2013 15:00	BQ_SU02_0.0	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



Requested Deliverables

JOHN EWING

- *AU Certificate of Analysis - NATA (COA) Email john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email john.ewing@erm.com
- Chain of Custody (CoC) (COC) Email john.ewing@erm.com
- EDI Format - ENMRG (ENMRG) Email john.ewing@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM) Email john.ewing@erm.com
- EDI Format - ESDAT (ESDAT) Email john.ewing@erm.com
- EDI Format - XTab (XTAB) Email john.ewing@erm.com

MR ANDREW MORRIS

- A4 - AU Tax Invoice (INV) Email andrew.morris@erm.com

SYMPHONY MACGEN

- A4 - AU Tax Invoice (INV) Email symphony.macgen@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV) Email au.accounts@erm.com



AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD

ABN 36 088 095 112

Our ref: ASET36450/ 39630 / 1 - 32

Your ref: ES1326238

NATA Accreditation No: 14484

8 December 2013

Australian Laboratory Services Pty Ltd
277 Woodpark Road
Smithfield NSW 2164

Attn: Ms Nanthini Coilparampil

Dear Nanthini,

Asbestos Identification

This report presents the results of thirty-two samples, forwarded by Australian Laboratory Services Pty Ltd on 6 December 2013, for analysis for asbestos.

1. Introduction: Thirty-two samples forwarded were examined and analysed for the presence of asbestos.

2. Methods : The samples were examined under a Stereo Microscope and selected fibres were analysed by Polarized Light Microscopy in conjunction with Dispersion Staining method (**Safer Environment Method 1.**)

3. Results : **Sample No. 1. ASET36450 / 39630 / 1. ES1326238 - 001 - BQ_SV22_0.0.**
Approx dimensions 8.8 cm x 8.8 cm x 5.8 cm
The sample consisted of a mixture of soil, stones, plant matter, wood chips and fragments of plaster.
No asbestos detected.

Sample No. 2. ASET36450 / 39630 / 2. ES1326238 - 002 - BQ_SV23_0.0.
Approx dimensions 7.5 cm x 7.5 cm x 4.0 cm
The sample consisted of a mixture of clayish soil, stones and plant matter.
No asbestos detected.

Sample No. 3. ASET36450 / 39630 / 3. ES1326238 - 003 - BQ_SV24_0.1.
Approx dimensions 7.0 cm x 7.0 cm x 4.5 cm
The sample consisted of a mixture of soil, stones, fibres[^], plant matter, fragments of plaster, cement and brick.
Chrysotile[^] asbestos and Amosite[^] asbestos detected.

Sample No. 4. ASET36450 / 39630 / 4. ES1326238 - 004 - BQ_SV25_0.1.
Approx dimensions 7.0 cm x 6.8 cm x 4.1 cm
The sample consisted of a mixture of soil, stones, fibres[^], plant matter, fragments of plaster, cement and brick.
Chrysotile[^] asbestos detected.

Sample No. 5. ASET36450 / 39630 / 5. ES1326238 - 005 - BQ_SV26_0.2.
Approx dimensions 7.0 cm x 6.5 cm x 4.2 cm
The sample consisted of a mixture of clayish soil, stones, fibres[^], plant matter and fragments of plaster.
Chrysotile[^] asbestos detected.

SUITE 710 / 90 GEORGE STREET, HORNSBY NSW 2077 – P.O. BOX 1644 HORNSBY WESTFIELD NSW 1635

PHONE: (02) 99872183 FAX: (02) 99872151 EMAIL: aset@bigpond.net.au WEBSITE: www.Ausset.com.au

OCCUPATIONAL HEALTH & SAFETY STUDIES • INDOOR AIR QUALITY SURVEYS • HAZARDOUS MATERIAL SURVEYS • RADIATION SURVEYS • ASBESTOS SURVEYS
ASBESTOS DETECTION & IDENTIFICATION • REPAIR & CALIBRATION OF SCIENTIFIC EQUIPMENT • AIRBORNE FIBRE & SILICA MONITORING



Sample No. 6. ASET36450 / 39630 / 6. ES1326238 - 006 - BQ_SV27_0.3.
Approx dimensions 7.1 cm x 6.6 cm x 4.8 cm
The sample consisted of a mixture of soil, stones, fibres[^], plant matter, fragments of plaster and cement.
Chrysotile[^] asbestos and Amosite[^] asbestos detected.

Sample No. 7. ASET36450 / 39630 / 7. ES1326238 - 007 - BQ_SV28_0.4.
Approx dimensions 7.0 cm x 7.0 cm x 4.1 cm
The sample consisted of a mixture of clayish soil, stones, fibres[^], plant matter and fragments of plaster.
Chrysotile[^] asbestos detected.

Sample No. 8. ASET36450 / 39630 / 8. ES1326238 - 008 - BQ_SV03_0.0.
Approx dimensions 7.5 cm x 7.5 cm x 4.4 cm
The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster and brick.
No asbestos detected.

Sample No. 9. ASET36450 / 39630 / 9. ES1326238 - 009 - BQ_SV04_0.0.
Approx dimensions 7.8 cm x 7.4 cm x 4.1 cm
The sample consisted of a mixture of soil, stones, plant matter and fragments of plaster.
No asbestos detected.

Sample No. 10. ASET36450 / 39630 / 10. ES1326238 - 010 - BQ_SV05_0.0.
Approx dimensions 7.5 cm x 7.0 cm x 4.4 cm
The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster and cement.
No asbestos detected.

Sample No. 11. ASET36450 / 39630 / 11. ES1326238 - 011 - BQ_SV06_0.0.
Approx dimensions 6.8 cm x 6.5 cm x 4.9 cm
The sample consisted of a mixture of clayish soil, stones, fibres[^] and plant matter.
Chrysotile[^] asbestos detected.

Sample No. 12. ASET36450 / 39630 / 12. ES1326238 - 012 - BQ_SV07_0.0.
Approx dimensions 8.0 cm x 8.0 cm x 4.0 cm
The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster and brick.
No asbestos detected.

Sample No. 13. ASET36450 / 39630 / 13. ES1326238 - 013 - BQ_SV08_0.0.
Approx dimensions 7.8 cm x 7.5 cm x 4.6 cm
The sample consisted of a mixture of soil, stones, fibres[^], plant matter, fragments of plaster, cement and brick.
Chrysotile[^] asbestos and Amosite[^] asbestos detected.

Sample No. 14. ASET36450 / 39630 / 14. ES1326238 - 014 - BQ_SV09_0.0.
Approx dimensions 7.5 cm x 7.5 cm x 5.0 cm
The sample consisted of a mixture of soil, stones, fibres[^], plant matter, fragments of plaster and brick.
Chrysotile[^] asbestos detected.

Sample No. 15. ASET36450 / 39630 / 15. ES1326238 - 015 - BQ_SV10_0.0.
Approx dimensions 8.0 cm x 7.0 cm x 4.2 cm
The sample consisted of a mixture of soil, stones, fibres[^], plant matter, fragments of plaster, cement and brick.
Chrysotile[^] asbestos detected.



Sample No. 16. ASET36450 / 39630 / 16. ES1326238 - 016 - BQ_SV11_0.0.
Approx dimensions 7.5 cm x 7.5 cm x 4.0 cm
The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster and cement.
No asbestos detected.

Sample No. 17. ASET36450 / 39630 / 17. ES1326238 - 017 - BQ_SV12_0.0.
Approx dimensions 7.5 cm x 7.4 cm x 4.1 cm
The sample consisted of a mixture of soil, stones and plant matter.
No asbestos detected.

Sample No. 18. ASET36450 / 39630 / 18. ES1326238 - 018 - BQ_SV13_0.0.
Approx dimensions 8.0 cm x 7.0 cm x 4.2 cm
The sample consisted of a mixture of soil, stones and plant matter.
No asbestos detected.

Sample No. 19. ASET36450 / 39630 / 19. ES1326238 - 019 - BQ_SV14_0.0
Approx dimensions 7.0 cm x 7.0 cm x 4.8 cm
The sample consisted of a mixture of soil, stones, plant matter and fragments of plaster.
No asbestos detected.

Sample No. 20. ASET36450 / 39630 / 20. ES1326238 - 020 - BQ_SV15_0.0.
Approx dimensions 7.6 cm x 7.4 cm x 4.0 cm
The sample consisted of a mixture of soil, stones, fibres[^], plant matter, fragments of plaster and brick.
Chrysotile[^] asbestos detected.

Sample No. 21. ASET36450 / 39630 / 21. ES1326238 - 021 - BQ_SV16_0.0.
Approx dimensions 8.0 cm x 8.0 cm x 4.2 cm
The sample consisted of a mixture of soil, stones, fibres[^], plant matter and fragments of plaster.
Chrysotile[^] asbestos detected.

Sample No. 22. ASET36450 / 39630 / 22. ES1326238 - 022 - BQ_SV17_0.0.
Approx dimensions 7.8 cm x 7.5 cm x 4.3 cm
The sample consisted of a mixture of soil, stones, plant matter, fibres[^], fragments of plaster and brick.
Chrysotile[^] asbestos detected.

Sample No. 23. ASET36450 / 39630 / 23. ES1326238 - 023 - BQ_SV18_0.0.
Approx dimensions 8.0 cm x 8.0 cm x 4.0 cm
The sample consisted of a mixture of soil, stones, fibres[^], plant matter, fragments of plaster, bitumen and brick.
Chrysotile[^] asbestos detected.

Sample No. 24. ASET36450 / 39630 / 24. ES1326238 - 024 - BQ_SV19_0.0.
Approx dimensions 8.0 cm x 7.8 cm x 4.4 cm
The sample consisted of a mixture of soil, stones, fibres[^], plant matter, fragments of plaster and brick.
Chrysotile[^] asbestos detected.

Sample No. 25. ASET36450 / 39630 / 25. ES1326238 - 025 - BQ_SV20_0.0.
Approx dimensions 8.1 cm x 8.0 cm x 4.2 cm
The sample consisted of a mixture of soil, stones, fibres[^], plant matter, fragments of plaster and brick.
Chrysotile[^] asbestos detected.



Sample No. 26. ASET36450 / 39630 / 26. ES1326238 - 026 - BQ_SV21_0.0.
Approx dimensions 8.0 cm x 8.0 cm x 4.5 cm
The sample consisted of a mixture of soil, stones, fibres[^], plant matter, fragments of plaster, cement and brick.
Chrysotile[^] asbestos detected.

Sample No. 27. ASET36450 / 39630 / 27. ES1326238 - 027 - BQ_SV29_0.0.
Approx dimensions 10.0 cm x 9.0 cm x 5.0 cm
The sample consisted of a mixture of soil, stones, plant matter and glass.
No asbestos detected.

Sample No. 28. ASET36450 / 39630 / 28. ES1326238 - 028 - BQ_SV30_0.0.
Approx dimensions 8.0 cm x 8.0 cm x 4.1 cm
The sample consisted of a mixture of soil, stones, plant matter and glass.
No asbestos detected.

Sample No. 29. ASET36450 / 39630 / 29. ES1326238 - 029 - BQ_SV31_0.0.
Approx dimensions 9.0 cm x 9.0 cm x 5.1 cm
The sample consisted of a mixture of soil, stones, plant matter, corroded metal and glass.
No asbestos detected.

Sample No. 30. ASET36450 / 39630 / 30. ES1326238 - 030 - BQ_SV32_0.0.
Approx dimensions 8.0 cm x 7.5 cm x 4.5 cm
The sample consisted of a mixture of soil, stones, plant matter, corroded metal and glass.
No asbestos detected.

Sample No. 31. ASET36450 / 39630 / 31. ES1326238 - 031 - BQ_SV01_0.0.
Approx dimensions 8.0 cm x 8.0 cm x 5.0 cm
The sample consisted of a mixture of soil, stones and plant matter.
No asbestos detected.

Sample No. 32. ASET36450 / 39630 / 32. ES1326238 - 032 - BQ_SV02_0.0.
Approx dimensions 8.2 cm x 8.0 cm x 4.8 cm
The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster and brick.
No asbestos detected.

Analysed and reported by,

A handwritten signature in black ink, appearing to read 'Nisansala Maddage', written over a light blue grid background.

**Nisansala Maddage. BSc(Hons)
Environmental Scientist/Approved Identifier
Approved Signatory**



**This document is issued in accordance with
NATA's Accreditation requirements. Accredited
for compliance with ISO/IEC 17025.**

[^] denotes loose fibres of relevant asbestos types detected in soil/dust.

12/12

CHAIN OF CUSTODY
ALS Laboratory
Please tick →

CLIENT: ERM Sydney
OFFICE: Sydney
PROJECT: Project Sydney
ORDER NUMBER: 0224192
PROJECT MANAGER: Zoe Perry
SAMPLER: Winand Gens

TURNAROUND REQUIREMENTS:
 Standard TAT may be longer for some tests only.
 Non Standard or urgent TAT (List due date):
 ALS QUOTE NO.: SY79473
 SITE: BAYSWATER/LIDDELL
 CONTACT PH: 02 8584 8888
 SAMPLER MOBILE: 04 01565588
 EDD FORMAT (or default):

FOR LABORATORY USE ONLY (Check)
 Custody Seal Intact: Yes No N/A
 Fridge / frozen ice packs present upon receipt? Yes No N/A
 Random Sample Temperature on Receipt: °C
 Other comment:

RECEIVED BY: Frank ACS
DATE/TIME: 4.12.13 1900

RECEIVED BY: DATE/TIME:

RECEIVED BY: DATE/TIME:

Email Reports to (will default to PM if no other addresses are listed):
 Email Invoices to (will default to PM if no other addresses are listed):

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	LAB ID	SAMPLE ID	MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS	ANALYSIS REQUIRED including SUITES (N/A). Suite Codes must be listed to attract suite price. Where Matrix not required, specify Total (unit/total bottles required) or Discreet (field filtered bottle required).	Additional Information
	1	RO1-221113-WG	W	22/11/2013 9:14 AM	W	Muchland	3	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B), 5-24 TRH(CS), Mo, Ti, Se), Phenols (C0)/BTEXN, PAH, VOC Target Scan, PCB, pH (1:5) + TC	
	2	RO1-261113-WG	W	24/11/2013 4 AM	W	4	3		
	3	RO1-271113-WG	W	27/11/2013 8:40 AM	W	7	3		
	4	TSP7-WG	W	25/11	Sol	Map. sealed glass jar	1		
	5	B/RK-WG	W	Not specified					
	6	BR-MW01-25mbys	W	22/11/13 8:00					
	7	BR-MW01-44mbys	W	8:45					
	8	BR-MW05-12mbys	W	26/11/13 9:15					
	9	BR-MW06-18mbys	W	9:20					
	10	BR-MW11-9mbys	W	2:00 PM					
	11	BR-MW01-23mbys	W	27/11/13 8:50 AM					
	12	DOT-271113-WG	W	11					

**Environmental Division
Sydney
Work Order
ES1326688**

Telephone : +61-2-8784 8555

ANALYSIS REQUIRED including SUITES (N/A). Suite Codes must be listed to attract suite price. Where Matrix not required, specify Total (unit/total bottles required) or Discreet (field filtered bottle required).

17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B), 5-24 TRH(CS), Mo, Ti, Se), Phenols (C0)/BTEXN, PAH, VOC Target Scan, PCB, pH (1:5) + TC

Comments on likely contaminant levels, dilutions, or complete requiring specific C/C analysis etc.

WATER CONTAINER CODES: P = Unpreserved Plastic; N = Niche Preserved Plastic; ORC = Niche Preserved ORC; SH = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved Plastic; AP = Airtight Unpreserved Plastic; V = VOA Vol HCl Preserved; VB = VOA Vol, Sodium Dichloride Preserved; VS = VOA Vol Sulfuric Preserved; AV = Airtight Unpreserved Vol; SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HB = HCl Preserved Specimen Bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = ZPC Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sample Bottle; ACS = Plastic Bottle for Acid Sulphate Solids; B = Unpreserved Btl.

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: ES1326688		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact Address	: MR JOSEPH FERRING GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Contact Address	: Barbara Hanna 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	Page	: 1 of 3
Order number	: 0224193	Quote number	: ES2013ENVRES0369 (SY/794/13)
C-O-C number	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER/LIDDELL		
Sampler	: WG		

Dates

Date Samples Received	: 04-DEC-2013	Issue Date	: 06-DEC-2013 16:38
Client Requested Due Date	: 10-DEC-2013	Scheduled Reporting Date	: 10-DEC-2013

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 4.2°C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 17
Security Seal	: Intact.	No. of samples analysed	: 17

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- Sample T01_271113 to be forwarded to Envirolab.
- Natural bottle not supplied for samples R01_221113_WG, R01_261113_WG and R01_271113_WG, unable to conduct pH and EC.
- **Samples received in appropriately pretreated and preserved containers.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Breaches in recommended extraction / analysis holding times may occur. Please refer to the 'Proactive Holding Time Report' below for further details. Please contact ALS if further information is required.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA010 (solids): Electrical Conductivity (1:5)	SOIL - EG005T (solids) Electrical Conductivity (1:5)	Total Metals by ICP-AES	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-24 TRH/BTEXN/PAH + Phenols
ES1326688-004	25-NOV-2013 15:00	TSP7_WG						✓	
ES1326688-005	04-DEC-2013 15:00	B/K_WG						✓	
ES1326688-006	22-NOV-2013 08:00	BR_MW01_25MBG	✓	✓	✓	✓	✓		✓
ES1326688-007	22-NOV-2013 08:45	BR_MW01_49MBGS	✓	✓	✓	✓	✓		✓
ES1326688-008	26-NOV-2013 09:15	BR_MW06_12MBGS	✓	✓	✓	✓	✓		✓
ES1326688-009	26-NOV-2013 09:40	BR_MW06_18MBGS	✓	✓	✓	✓	✓		✓
ES1326688-010	26-NOV-2013 14:00	BR_MW11_9MBGS	✓	✓	✓	✓	✓		✓
ES1326688-011	27-NOV-2013 08:50	BR_MW09_2-3MBGS	✓	✓	✓	✓	✓		✓
ES1326688-012	27-NOV-2013 08:50	D01_271113_WG	✓	✓	✓	✓	✓		✓
ES1326688-013	27-NOV-2013 16:15	BN_MW01_2MBGS	✓	✓		✓	✓		✓
ES1326688-014	27-NOV-2013 16:40	BN_MW01_10MBGS	✓	✓		✓	✓		✓
ES1326688-015	27-NOV-2013 14:30	BN_MW02_2MBGS	✓	✓		✓	✓		✓
ES1326688-016	27-NOV-2013 15:30	BN_MW02_10MBGS	✓	✓		✓	✓		✓
ES1326688-017	27-NOV-2013 15:00	TSC						✓	

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS (including)	WATER - W-02T 8 metals (Total)	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1326688-001	22-NOV-2013 09:00	R01_221113_WG	✓	✓	✓
ES1326688-002	26-NOV-2013 09:00	R01_261113_WG	✓	✓	✓
ES1326688-003	27-NOV-2013 08:40	R01_271113_WG	✓	✓	✓



Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method		Due for extraction	Due for analysis	Samples Received		Instructions Received	
Client Sample ID(s)	Container			Date	Evaluation	Date	Evaluation
EA002: pH (1:5)							
BR_MW01_25MBG	Soil Glass Jar - Unpreserved	29-NOV-2013	----	04-DEC-2013	*	04-DEC-2013	*
BR_MW01_49MBGS	Soil Glass Jar - Unpreserved	29-NOV-2013	----	04-DEC-2013	*	04-DEC-2013	*
BR_MW06_12MBGS	Soil Glass Jar - Unpreserved	03-DEC-2013	----	04-DEC-2013	*	04-DEC-2013	*
BR_MW06_18MBGS	Soil Glass Jar - Unpreserved	03-DEC-2013	----	04-DEC-2013	*	04-DEC-2013	*
BR_MW11_9MBGS	Soil Glass Jar - Unpreserved	03-DEC-2013	----	04-DEC-2013	*	04-DEC-2013	*
EA010: Electrical Conductivity (1:5)							
BR_MW01_25MBG	Soil Glass Jar - Unpreserved	29-NOV-2013	----	04-DEC-2013	*	04-DEC-2013	*
BR_MW01_49MBGS	Soil Glass Jar - Unpreserved	29-NOV-2013	----	04-DEC-2013	*	04-DEC-2013	*
BR_MW06_12MBGS	Soil Glass Jar - Unpreserved	03-DEC-2013	----	04-DEC-2013	*	04-DEC-2013	*
BR_MW06_18MBGS	Soil Glass Jar - Unpreserved	03-DEC-2013	----	04-DEC-2013	*	04-DEC-2013	*
BR_MW11_9MBGS	Soil Glass Jar - Unpreserved	03-DEC-2013	----	04-DEC-2013	*	04-DEC-2013	*

Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method		Due for extraction	Due for analysis	Samples Received		Instructions Received	
Client Sample ID(s)	Container			Date	Evaluation	Date	Evaluation
EP071: TPH - Semivolatle Fraction							
R01_221113_WG	Amber Glass Bottle - Unpreserved	29-NOV-2013	----	04-DEC-2013	*	04-DEC-2013	*
R01_261113_WG	Amber Glass Bottle - Unpreserved	03-DEC-2013	----	04-DEC-2013	*	04-DEC-2013	*
EP075(SIM): PAH/Phenols (GC/MS - SIM)							
R01_221113_WG	Amber Glass Bottle - Unpreserved	29-NOV-2013	----	04-DEC-2013	*	04-DEC-2013	*
R01_261113_WG	Amber Glass Bottle - Unpreserved	03-DEC-2013	----	04-DEC-2013	*	04-DEC-2013	*

Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA)	Email	joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	joseph.ferring@erm.com
- Chain of Custody (CoC) (COC)	Email	joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	joseph.ferring@erm.com
- EDI Format - XTab (XTAB)	Email	joseph.ferring@erm.com

SYMPHONY ERARING

- *AU Certificate of Analysis - NATA (COA)	Email	Symphony.Eraring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Symphony.Eraring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Symphony.Eraring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Symphony.Eraring@erm.com
- Chain of Custody (CoC) (COC)	Email	Symphony.Eraring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	Symphony.Eraring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	Symphony.Eraring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	Symphony.Eraring@erm.com
- EDI Format - XTab (XTAB)	Email	Symphony.Eraring@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
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CERTIFICATE OF ANALYSIS

Work Order	: ES1326688	Page	: 1 of 15
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0224193	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 10-DEC-2013
Sampler	: WG	No. of samples received	: 17
Site	: BAYSWATER/LIDDELL	No. of samples analysed	: 17
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EG005T: Poor precision was obtained for Zinc on sample ES1326688 #009. Results have been confirmed by re-extraction and re-analysis.**
- **EG020: Results for samples ES1326688-1,2,3 have been confirmed.**
- **EP080: The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.**



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Inorganics Sydney Organics



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TSP7_WG	B/K_WG	BR_MW01_25MBG	BR_MW01_49MBGS	BR_MW06_12MBGS
				25-NOV-2013 15:00	04-DEC-2013 15:00	22-NOV-2013 08:00	22-NOV-2013 08:45	26-NOV-2013 09:15
Compound	CAS Number	LOR	Unit	ES1326688-004	ES1326688-005	ES1326688-006	ES1326688-007	ES1326688-008
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	----	----	7.3	9.2	8.6
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	71	147	178
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	----	----	9.0	5.8	10.2
EG005T: Total Metals by ICP-AES								
Barium	7440-39-3	10	mg/kg	----	----	<10	100	70
Beryllium	7440-41-7	1	mg/kg	----	----	<1	<1	1
Boron	7440-42-8	50	mg/kg	----	----	<50	<50	<50
Cobalt	7440-48-4	2	mg/kg	----	----	<2	7	10
Manganese	7439-96-5	5	mg/kg	----	----	745	441	423
Molybdenum	7439-98-7	2	mg/kg	----	----	<2	<2	<2
Selenium	7782-49-2	5	mg/kg	----	----	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	----	----	6	22	25
Thallium	7440-28-0	5	mg/kg	----	----	<5	<5	<5
Arsenic	7440-38-2	5	mg/kg	----	----	<5	<5	7
Cadmium	7440-43-9	1	mg/kg	----	----	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	----	----	<2	5	4
Copper	7440-50-8	5	mg/kg	----	----	6	12	32
Lead	7439-92-1	5	mg/kg	----	----	9	12	15
Nickel	7440-02-0	2	mg/kg	----	----	<2	7	12
Zinc	7440-66-6	5	mg/kg	----	----	22	46	77
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	----	<0.1	<0.1	<0.1
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TSP7_WG	B/K_WG	BR_MW01_25MBG	BR_MW01_49MBGS	BR_MW06_12MBGS
				25-NOV-2013 15:00	04-DEC-2013 15:00	22-NOV-2013 08:00	22-NOV-2013 08:45	26-NOV-2013 09:15
Compound	CAS Number	LOR	Unit	ES1326688-004	ES1326688-005	ES1326688-006	ES1326688-007	ES1326688-008
EP075(SIM)A: Phenolic Compounds - Continued								
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	----	----	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	----	0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	----	2.0	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	----	----	1.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	0.9	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	----	0.9	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	----	1.0	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	6.8	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	0.8	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	1.3	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	106	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	----	----	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	----	----	350	<100	<100
C29 - C36 Fraction	----	100	mg/kg	----	----	140	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	490	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	116	<10	<10	<10	<10



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TSP7_WG	B/K_WG	BR_MW01_25MBG	BR_MW01_49MBGS	BR_MW06_12MBGS
				25-NOV-2013 15:00	04-DEC-2013 15:00	22-NOV-2013 08:00	22-NOV-2013 08:45	26-NOV-2013 09:15
Compound	CAS Number	LOR	Unit	ES1326688-004	ES1326688-005	ES1326688-006	ES1326688-007	ES1326688-008
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued								
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	84	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	----	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	----	----	420	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	----	----	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	420	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	0.7	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	16.3	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	1.9	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	9.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	3.8	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	32.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	13.3	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	----	----	77.2	74.7	79.1
2-Chlorophenol-D4	93951-73-6	0.1	%	----	----	89.5	95.1	94.8
2,4,6-Tribromophenol	118-79-6	0.1	%	----	----	77.5	116	114
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	96.8	99.4	96.4
Anthracene-d10	1719-06-8	0.1	%	----	----	84.9	93.2	92.2
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	84.6	89.2	87.7
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	89.1	108	78.8	96.9	93.7
Toluene-D8	2037-26-5	0.1	%	83.5	89.8	81.4	90.6	82.9
4-Bromofluorobenzene	460-00-4	0.1	%	85.4	92.6	83.6	95.5	85.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BR_MW06_18MBGS	BR_MW11_9MBGS	BR_MW09_2-3MBGS	D01_271113_WG	BN_MW01_2MBGS
				26-NOV-2013 09:40	26-NOV-2013 14:00	27-NOV-2013 08:50	27-NOV-2013 08:50	27-NOV-2013 16:15
Compound	CAS Number	LOR	Unit	ES1326688-009	ES1326688-010	ES1326688-011	ES1326688-012	ES1326688-013
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	9.9	9.8	11.4	6.0	8.8
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	270	850	1680	1640	512
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	38.3	8.7	5.1	4.5	5.8
EG005T: Total Metals by ICP-AES								
Barium	7440-39-3	10	mg/kg	180	90	140	160	----
Beryllium	7440-41-7	1	mg/kg	<1	<1	1	1	----
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	----
Cobalt	7440-48-4	2	mg/kg	6	7	28	29	----
Manganese	7439-96-5	5	mg/kg	244	191	525	538	----
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	<2	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	----
Vanadium	7440-62-2	5	mg/kg	15	12	29	29	----
Thallium	7440-28-0	5	mg/kg	<5	<5	<5	<5	----
Arsenic	7440-38-2	5	mg/kg	<5	6	17	16	10
Cadmium	7440-43-9	1	mg/kg	<1	<1	1	1	<1
Chromium	7440-47-3	2	mg/kg	5	4	6	6	13
Copper	7440-50-8	5	mg/kg	12	18	26	25	24
Lead	7439-92-1	5	mg/kg	8	11	16	16	14
Nickel	7440-02-0	2	mg/kg	5	8	36	37	23
Zinc	7440-66-6	5	mg/kg	138	83	121	121	71
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	3.1	4.4	<0.1
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	1.0	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BR_MW06_18MBGS	BR_MW11_9MBGS	BR_MW09_2-3MBGS	D01_271113_WG	BN_MW01_2MBGS
				26-NOV-2013 09:40	26-NOV-2013 14:00	27-NOV-2013 08:50	27-NOV-2013 08:50	27-NOV-2013 16:15
Compound	CAS Number	LOR	Unit	ES1326688-009	ES1326688-010	ES1326688-011	ES1326688-012	ES1326688-013
EP075(SIM)A: Phenolic Compounds - Continued								
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	0.7
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	0.7
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	11	<10	31
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	130	120	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	130	120	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	11	<10	35



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				BR_MW06_18MBGS	BR_MW11_9MBGS	BR_MW09_2-3MBGS	D01_271113_WG	BN_MW01_2MBGS
				26-NOV-2013 09:40	26-NOV-2013 14:00	27-NOV-2013 08:50	27-NOV-2013 08:50	27-NOV-2013 16:15
Compound	CAS Number	LOR	Unit	ES1326688-009	ES1326688-010	ES1326688-011	ES1326688-012	ES1326688-013
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued								
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	34
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	130	120	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	130	120	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	2.5	1.9	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	0.8
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	2.5	1.9	0.8
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	0.8
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	71.7	90.3	78.4	83.7	77.8
2-Chlorophenol-D4	93951-73-6	0.1	%	89.8	80.3	92.7	101	95.5
2,4,6-Tribromophenol	118-79-6	0.1	%	99.8	37.4	117	108	108
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	92.6	78.2	96.4	106	95.6
Anthracene-d10	1719-06-8	0.1	%	88.2	67.8	85.2	88.0	88.4
4-Terphenyl-d14	1718-51-0	0.1	%	83.1	63.4	82.8	85.4	83.1
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	92.9	93.2	101	100	96.3
Toluene-D8	2037-26-5	0.1	%	77.9	87.0	96.2	89.1	92.6
4-Bromofluorobenzene	460-00-4	0.1	%	81.7	89.3	93.7	89.8	94.6



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BN_MW01_10MBGS	BN_MW02_2MBGS	BN_MW02_10MBGS	TSC	----
				27-NOV-2013 16:40	27-NOV-2013 14:30	27-NOV-2013 15:30	27-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326688-014	ES1326688-015	ES1326688-016	ES1326688-017	----
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	9.2	8.4	9.2	----	----
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	567	579	580	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	4.0	6.8	4.1	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	7	8	6	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	13	10	11	----	----
Copper	7440-50-8	5	mg/kg	20	22	21	----	----
Lead	7439-92-1	5	mg/kg	12	16	13	----	----
Nickel	7440-02-0	2	mg/kg	21	22	20	----	----
Zinc	7440-66-6	5	mg/kg	60	82	60	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BN_MW01_10MBGS	BN_MW02_2MBGS	BN_MW02_10MBGS	TSC	----
				27-NOV-2013 16:40	27-NOV-2013 14:30	27-NOV-2013 15:30	27-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326688-014	ES1326688-015	ES1326688-016	ES1326688-017	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	102	18	25	109	----
C10 - C14 Fraction	----	50	mg/kg	360	<50	260	----	----
C15 - C28 Fraction	----	100	mg/kg	1650	<100	1390	----	----
C29 - C36 Fraction	----	100	mg/kg	330	<100	250	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	2340	<50	1900	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	156	22	49	119	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	156	22	49	86	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	540	<50	420	----	----
>C16 - C34 Fraction	----	100	mg/kg	1670	<100	1390	----	----
>C34 - C40 Fraction	----	100	mg/kg	160	<100	120	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	2370	<50	1930	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	540	<50	420	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	0.8	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	BN_MW01_10MBGS	BN_MW02_2MBGS	BN_MW02_10MBGS	TSC	---
Client sampling date / time	27-NOV-2013 16:40	27-NOV-2013 14:30	27-NOV-2013 15:30	27-NOV-2013 15:00	---
Compound	ES1326688-014	ES1326688-015	ES1326688-016	ES1326688-017	---

Compound	CAS Number	LOR	Unit	ES1326688-014	ES1326688-015	ES1326688-016	ES1326688-017	---
EP080: BTEXN - Continued								
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	16.8	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	2.0	---
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	9.6	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	3.8	---
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	33.0	---
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	13.4	---
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	---
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	84.4	69.4	82.7	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	93.1	95.1	94.8	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	114	102	116	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	95.0	96.0	97.4	----	----
Anthracene-d10	1719-06-8	0.1	%	86.9	86.6	88.8	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	83.9	81.5	85.2	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	87.0	102	102	84.6	----
Toluene-D8	2037-26-5	0.1	%	89.1	87.6	98.5	96.6	----
4-Bromofluorobenzene	460-00-4	0.1	%	93.0	88.1	96.8	96.7	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_221113_WG	R01_261113_WG	R01_271113_WG	---	---
Client sampling date / time				22-NOV-2013 09:00	26-NOV-2013 09:00	27-NOV-2013 08:40	---	---
Compound	CAS Number	LOR	Unit	ES1326688-001	ES1326688-002	ES1326688-003	---	---
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	---	---
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	<0.001	---	---
Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.003	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	0.001	0.001	---	---
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	<0.005	---	---
Manganese	7439-96-5	0.001	mg/L	<0.001	0.006	0.009	---	---
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.003	---	---
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	---	---
Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	<0.001	---	---
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	---	---
Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	<0.05	---	---
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	---	---
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	---	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_221113_WG	R01_261113_WG	R01_271113_WG	---	---
				22-NOV-2013 09:00	26-NOV-2013 09:00	27-NOV-2013 08:40	---	---
Compound	CAS Number	LOR	Unit	ES1326688-001	ES1326688-002	ES1326688-003	---	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	---	---
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	---	---
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	---	---
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	---	---
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	---	---
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	---	---
EP080: BTEXN								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_221113_WG	R01_261113_WG	R01_271113_WG	----	----
				22-NOV-2013 09:00	26-NOV-2013 09:00	27-NOV-2013 08:40	----	----
Compound	CAS Number	LOR	Unit	ES1326688-001	ES1326688-002	ES1326688-003	----	----
EP080: BTEXN - Continued								
Benzene	71-43-2	1	µg/L	<1	<1	<1	----	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	----	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	----	----
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	----	----
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	22.4	27.4	28.8	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	45.7	59.5	62.5	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	55.5	73.6	75.0	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	52.3	66.4	70.3	----	----
Anthracene-d10	1719-06-8	0.1	%	53.4	71.6	72.9	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	59.7	78.4	81.1	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	87.4	84.4	88.1	----	----
Toluene-D8	2037-26-5	0.1	%	102	92.7	94.8	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	96.7	93.4	97.6	----	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: ES1326688	Page	: 1 of 20
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER/LIDDELL	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 10-DEC-2013
Sampler	: WG	No. of samples received	: 17
Order number	: 0224193	No. of samples analysed	: 17
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC



NATA Accredited
Laboratory 825

Accredited for
compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Inorganics Sydney Organics



Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA002 : pH (Soils) (QC Lot: 3200605)									
ES1326688-006	BR_MW01_25MBG	EA002: pH Value	----	0.1	pH Unit	7.3	7.2	0.0	0% - 20%
ES1326688-016	BN_MW02_10MBGS	EA002: pH Value	----	0.1	pH Unit	9.2	9.2	0.0	0% - 20%
EA010: Conductivity (QC Lot: 3200606)									
ES1326688-006	BR_MW01_25MBG	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	71	72	1.4	0% - 20%
ES1326688-016	BN_MW02_10MBGS	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	580	581	0.2	0% - 20%
EA055: Moisture Content (QC Lot: 3201225)									
ES1326685-007	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	17.7	17.5	1.4	0% - 50%
ES1326687-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	7.7	7.7	0.0	No Limit
EA055: Moisture Content (QC Lot: 3201226)									
ES1326688-013	BN_MW01_2MBGS	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	5.8	5.7	0.0	No Limit
ES1326692-004	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	19.7	19.0	3.3	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 3201217)									
ES1326161-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	60	60	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	18	18	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	7	7	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	11	10	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	6	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	10	9	11.7	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	287	293	2.0	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	30	30	3.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	21	20	0.0	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
ES1326688-009	BR_MW06_18MBGS	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	180	220	19.3	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	5	4	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	6	6	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
EG005T: Total Metals by ICP-AES (QC Lot: 3201217) - continued											
ES1326688-009	BR_MW06_18MBGS	EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit		
		EG005T: Copper	7440-50-8	5	mg/kg	12	12	0.0	No Limit		
		EG005T: Lead	7439-92-1	5	mg/kg	8	8	0.0	No Limit		
		EG005T: Manganese	7439-96-5	5	mg/kg	244	253	3.4	0% - 20%		
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit		
		EG005T: Vanadium	7440-62-2	5	mg/kg	15	14	10.1	No Limit		
		EG005T: Zinc	7440-66-6	5	mg/kg	138	181	# 26.7	0% - 20%		
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit		
		EG005T: Boron	7440-42-8	50	mg/kg	<50	100	62.3	No Limit		
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3201218)											
ES1326161-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit		
ES1326688-009	BR_MW06_18MBGS	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit		
EP075(SIM)A: Phenolic Compounds (QC Lot: 3199164)											
ES1326686-005	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit		
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
		ES1326688-007	BR_MW01_49MBGS	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			1	mg/kg	<1	<1	0.0	No Limit		
EP075(SIM): Pentachlorophenol	87-86-5			2	mg/kg	<2	<2	0.0	No Limit		
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3199164)											
ES1326686-005	Anonymous			EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3199164) - continued									
ES1326686-005	Anonymous	EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1326688-007	BR_MW01_49MBGS	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3199163)									
ES1326686-005	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3199163) - continued										
ES1326688-007	BR_MW01_49MBGS	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3199452)										
ES1326673-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1326688-008	BR_MW06_12MBGS	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3199163)										
ES1326686-005	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1326688-007	BR_MW01_49MBGS	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3199452)										
ES1326673-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1326688-008	BR_MW06_12MBGS	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
EP080: BTEXN (QC Lot: 3199452)										
ES1326673-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1326688-008	BR_MW06_12MBGS	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			
Sub-Matrix: WATER										
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EG020T: Total Metals by ICP-MS (QC Lot: 3199919)										
ES1326293-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0136	0.0124	9.0	0% - 20%	
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.038	0.042	10.2	0% - 20%	
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.785	0.721	8.5	0% - 20%	
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.084	0.082	3.4	0% - 20%	



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 3199919) - continued									
ES1326293-001	Anonymous	EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.033	0.031	5.5	0% - 20%
		EG020A-T: Copper	7440-50-8	0.001	mg/L	29.3	30.8	5.0	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	4.97	4.52	9.6	0% - 20%
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.359	0.334	7.4	0% - 20%
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	0.266	0.251	5.9	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	1.29	1.25	3.2	0% - 20%
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	4.96	4.96	0.2	0% - 20%
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	5.33	5.25	1.6	0% - 20%
		EG020A-T: Boron	7440-42-8	0.05	mg/L	0.32	0.28	12.8	No Limit
ES1326388-004	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0002	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.020	0.020	0.0	0% - 50%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.003	0.004	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.021	0.021	0.0	0% - 50%
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.068	0.066	2.0	0% - 50%
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3200838)									
ES1326639-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1326680-011	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3198924)									
ES1326696-001	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3198924) - continued									
ES1326696-001	Anonymous	EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
ES1326680-010	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3198924)									
ES1326696-001	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
ES1326680-010	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3198924) - continued										
ES1326680-010	Anonymous	EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3198925)										
ES1326696-001	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit	
ES1326680-010	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	960	900	5.8	No Limit	
		EP071: C10 - C14 Fraction	----	50	µg/L	110	120	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3203047)										
ES1326487-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1326487-010	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3198925)										
ES1326696-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
ES1326680-010	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	370	370	0.0	No Limit	
		EP071: >C16 - C34 Fraction	----	100	µg/L	770	780	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3203047)										
ES1326487-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1326487-010	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
EP080: BTEXN (QC Lot: 3203047)										
ES1326487-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1326487-010	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	

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 Work Order : ES1326688
 Client : ENVIRO RESOURCES MANAGEMENT
 Project : Project Symphony



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 3203047) - continued									
ES1326487-010	Anonymous	EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EA010: Conductivity (QCLot: 3200606)									
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	100	70	130	
EG005T: Total Metals by ICP-AES (QCLot: 3201217)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	111	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	111	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	112	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	102	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	109	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	103	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	113	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	105	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	114	85	127	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	119	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	112	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	122	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	113	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	105	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	88.9	70	130	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3201218)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	77.5	66	112	
EP075(SIM)A: Phenolic Compounds (QCLot: 3199164)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	89.1	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	93.0	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	93.5	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	94.2	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	87.7	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	83.0	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	90.6	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	95.1	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	88.3	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	85.7	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	84.9	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	33.8	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3199164)									



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3199164) - continued									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	98.0	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	103	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	96.6	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	106	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	102	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	96.9	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	104	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	105	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	94.0	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	104	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	94.7	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	110	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	99.6	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	90.9	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	85.6	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	91.0	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199163)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	101	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	95.4	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	86.8	64	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199452)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	122	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199163)									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	100	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	91.0	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	77.7	63	131	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199452)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	116	68.4	128	
EP080: BTEXN (QCLot: 3199452)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	88.4	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	87.1	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	84.3	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	88.6	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	86.9	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	88.0	62	138	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EG020T: Total Metals by ICP-MS (QCLot: 3199919)									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.2	79	121	
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	101	76	120	
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	94.2	84	116	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	90.9	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	104	83	115	
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	101	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	102	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.9	85	115	
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	91.0	83	115	
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	94.9	81	125	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	103	83	117	
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	93.9	68	128	
EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	96.6	86	116	
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	102	84	114	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	91.4	76	118	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	102	73	127	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3200838)									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	88.1	77	115	
EP075(SIM)A: Phenolic Compounds (QCLot: 3198924)									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	# 66.2	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	# 63.5	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	71.0	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	69.6	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	67.0	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	70.2	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	69.5	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	70.8	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	71.3	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	69.8	58.7	118	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 3198924) - continued									
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	71.2	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	70.2	8.7	95	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3198924)									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	67.5	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	72.0	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	70.6	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	71.1	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	75.3	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	75.9	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	77.0	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	77.3	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	79.7	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	78.2	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	81.4	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	82.7	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	76.7	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	73.3	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	73.7	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	74.2	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3198925)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	94.6	59	129	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3198925) - continued									
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	91.3	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	93.5	62	120	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3203047)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	104	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3198925)									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	98.2	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	94.1	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	97.5	67	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3203047)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	106	75	127	
EP080: BTEXN (QCLot: 3203047)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	86.0	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	106	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	106	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	105	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	108	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	115	70	124	

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	
EG005T: Total Metals by ICP-AES (QCLot: 3201217)								
ES1326161-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	106	70	130	
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	70	130	
		EG005T: Chromium	7440-47-3	50 mg/kg	106	70	130	
		EG005T: Copper	7440-50-8	125 mg/kg	113	70	130	
		EG005T: Lead	7439-92-1	125 mg/kg	106	70	130	
		EG005T: Nickel	7440-02-0	50 mg/kg	107	70	130	
		EG005T: Selenium	7782-49-2	50 mg/kg	106	70	130	
		EG005T: Zinc	7440-66-6	125 mg/kg	104	70	130	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3201218)								
ES1326161-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	83.5	70	130	



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 3199164)								
ES1326686-005	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	89.2	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	97.6	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	89.4	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	92.0	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	88.4	20	130	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3199164)								
ES1326686-005	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	92.8	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	102	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199163)								
ES1326686-005	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	98.1	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	94.9	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	86.2	52	132	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199452)								
ES1326673-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	118	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199163)								
ES1326686-005	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	108	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	77.4	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	73.2	52	132	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199452)								
ES1326673-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	110	70	130	
EP080: BTEXN (QCLot: 3199452)								
ES1326673-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	83.2	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	76.2	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	77.1	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	78.2	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	81.6	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	78.0	70	130			

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 3199919)							
ES1326315-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	111	70	130
		EG020A-T: Beryllium	7440-41-7	1 mg/L	120	70	130
		EG020A-T: Barium	7440-39-3	1 mg/L	103	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	99.2	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	100	70	130



Sub-Matrix: WATER

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 3199919) - continued							
ES1326315-001	Anonymous	EG020A-T: Cobalt	7440-48-4	1 mg/L	99.5	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	106	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	116	70	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	104	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	99.0	70	130
		EG020A-T: Vanadium	7440-62-2	1 mg/L	101	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	104	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3200838)							
ES1326639-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	82.0	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3198924)							
ES1326696-002	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	39.5	20	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	78.5	60	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	74.9	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	76.7	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	75.0	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3198924)							
ES1326696-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	74.5	70	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	76.0	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3198925)							
ES1326696-002	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	111	74	150
		EP071: C15 - C28 Fraction	----	300 µg/L	104	77	153
		EP071: C29 - C36 Fraction	----	200 µg/L	103	67	153
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3203047)							
ES1326487-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	122	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3198925)							
ES1326696-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	112	74	150
		EP071: >C16 - C34 Fraction	----	350 µg/L	107	77	153
		EP071: >C34 - C40 Fraction	----	150 µg/L	102	67	153
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3203047)							
ES1326487-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	70	130
EP080: BTEXN (QCLot: 3203047)							
ES1326487-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	82.6	70	130
		EP080: Toluene	108-88-3	25 µg/L	105	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	111	70	130
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	110	70	130
		EP080: ortho-Xylene	106-42-3	25 µg/L	114	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%) Low High
EP080: BTEXN (QCLot: 3203047) - continued							
ES1326487-001		Anonymous	EP080: Naphthalene	91-20-3	25 µg/L	112	70 130

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS MSD		Recovery Limits (%) Low High		RPDs (%) Value Control Limit	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199163)											
ES1326686-005		Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	98.1	----	73	137	----	----
			EP071: C15 - C28 Fraction	----	3140 mg/kg	94.9	----	53	131	----	----
			EP071: C29 - C36 Fraction	----	2860 mg/kg	86.2	----	52	132	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199163)											
ES1326686-005		Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	108	----	73	137	----	----
			EP071: >C16 - C34 Fraction	----	4800 mg/kg	77.4	----	53	131	----	----
			EP071: >C34 - C40 Fraction	----	2400 mg/kg	73.2	----	52	132	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3199164)											
ES1326686-005		Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	89.2	----	70	130	----	----
			EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	97.6	----	70	130	----	----
			EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	89.4	----	60	130	----	----
			EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	92.0	----	70	130	----	----
			EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	88.4	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3199164)											
ES1326686-005		Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	92.8	----	70	130	----	----
			EP075(SIM): Pyrene	129-00-0	10 mg/kg	102	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199452)											
ES1326673-001		Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	118	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199452)											
ES1326673-001		Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	110	----	70	130	----	----
EP080: BTEXN (QCLot: 3199452)											
ES1326673-001		Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	83.2	----	70	130	----	----
			EP080: Toluene	108-88-3	2.5 mg/kg	76.2	----	70	130	----	----
			EP080: Ethylbenzene	100-41-4	2.5 mg/kg	77.1	----	70	130	----	----
			EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	78.2	----	70	130	----	----
				106-42-3							
			EP080: ortho-Xylene	95-47-6	2.5 mg/kg	81.6	----	70	130	----	----
			EP080: Naphthalene	91-20-3	2.5 mg/kg	78.0	----	70	130	----	----



Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EG005T: Total Metals by ICP-AES (QCLot: 3201217)										
ES1326161-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	106	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	106	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	113	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	106	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	107	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	106	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	104	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3201218)										
ES1326161-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	83.5	----	70	130	----	----

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP075(SIM)A: Phenolic Compounds (QCLot: 3198924)										
ES1326696-002	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	39.5	----	20	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	78.5	----	60	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	74.9	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	76.7	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	75.0	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3198924)										
ES1326696-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	74.5	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	20 µg/L	76.0	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3198925)										
ES1326696-002	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	111	----	74	150	----	----
		EP071: C15 - C28 Fraction	----	300 µg/L	104	----	77	153	----	----
		EP071: C29 - C36 Fraction	----	200 µg/L	103	----	67	153	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3198925)										
ES1326696-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	112	----	74	150	----	----
		EP071: >C16 - C34 Fraction	----	350 µg/L	107	----	77	153	----	----
		EP071: >C34 - C40 Fraction	----	150 µg/L	102	----	67	153	----	----
EG020T: Total Metals by ICP-MS (QCLot: 3199919)										
ES1326315-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	111	----	70	130	----	----
		EG020A-T: Beryllium	7440-41-7	1 mg/L	120	----	70	130	----	----
		EG020A-T: Barium	7440-39-3	1 mg/L	103	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	99.2	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	100	----	70	130	----	----
		EG020A-T: Cobalt	7440-48-4	1 mg/L	99.5	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	106	----	70	130	----	----



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EG020T: Total Metals by ICP-MS (QCLot: 3199919) - continued										
ES1326315-001	Anonymous	EG020A-T: Lead	7439-92-1	1 mg/L	116	----	70	130	----	----
		EG020A-T: Manganese	7439-96-5	1 mg/L	104	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	99.0	----	70	130	----	----
		EG020A-T: Vanadium	7440-62-2	1 mg/L	101	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	104	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3200838)										
ES1326639-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	82.0	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3203047)										
ES1326487-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	122	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3203047)										
ES1326487-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	----	70	130	----	----
EP080: BTEXN (QCLot: 3203047)										
ES1326487-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	82.6	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	105	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	111	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	110	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	114	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	112	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326688	Page	: 1 of 13
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER/LIDDELL	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 10-DEC-2013
Sampler	: WG	No. of samples received	: 17
Order number	: 0224193	No. of samples analysed	: 17
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002 : pH (Soils)							
Soil Glass Jar - Unpreserved (EA002) BR_MW01_25MBG, BR_MW01_49MBGS	22-NOV-2013	09-DEC-2013	29-NOV-2013	*	09-DEC-2013	09-DEC-2013	✓
Soil Glass Jar - Unpreserved (EA002) BR_MW06_12MBGS, BR_MW11_9MBGS	26-NOV-2013	09-DEC-2013	03-DEC-2013	*	09-DEC-2013	09-DEC-2013	✓
Soil Glass Jar - Unpreserved (EA002) BR_MW09_2-3MBGS, BN_MW01_2MBGS, BN_MW02_2MBGS,	27-NOV-2013	09-DEC-2013	04-DEC-2013	*	09-DEC-2013	09-DEC-2013	✓
EA010: Conductivity							
Soil Glass Jar - Unpreserved (EA010) BR_MW01_25MBG, BR_MW01_49MBGS	22-NOV-2013	09-DEC-2013	29-NOV-2013	*	09-DEC-2013	06-JAN-2014	✓
Soil Glass Jar - Unpreserved (EA010) BR_MW06_12MBGS, BR_MW11_9MBGS	26-NOV-2013	09-DEC-2013	03-DEC-2013	*	09-DEC-2013	06-JAN-2014	✓
Soil Glass Jar - Unpreserved (EA010) BR_MW09_2-3MBGS, BN_MW01_2MBGS, BN_MW02_2MBGS,	27-NOV-2013	09-DEC-2013	04-DEC-2013	*	09-DEC-2013	06-JAN-2014	✓
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103) BR_MW01_25MBG, BR_MW01_49MBGS	22-NOV-2013	----	----	----	09-DEC-2013	06-DEC-2013	*
Soil Glass Jar - Unpreserved (EA055-103) BR_MW06_12MBGS, BR_MW11_9MBGS	26-NOV-2013	----	----	----	09-DEC-2013	10-DEC-2013	✓
Soil Glass Jar - Unpreserved (EA055-103) BR_MW09_2-3MBGS, BN_MW01_2MBGS, BN_MW02_2MBGS,	27-NOV-2013	----	----	----	09-DEC-2013	11-DEC-2013	✓



Matrix: SOIL

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T) BR_MW01_25MBG,	BR_MW01_49MBGS	22-NOV-2013	09-DEC-2013	21-MAY-2014	✓	10-DEC-2013	21-MAY-2014	✓
Soil Glass Jar - Unpreserved (EG005T) BR_MW06_12MBGS, BR_MW11_9MBGS	BR_MW06_18MBGS,	26-NOV-2013	09-DEC-2013	25-MAY-2014	✓	10-DEC-2013	25-MAY-2014	✓
Soil Glass Jar - Unpreserved (EG005T) BR_MW09_2-3MBGS, BN_MW01_2MBGS, BN_MW02_2MBGS,	D01_271113_WG, BN_MW01_10MBGS, BN_MW02_10MBGS	27-NOV-2013	09-DEC-2013	26-MAY-2014	✓	10-DEC-2013	26-MAY-2014	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T) BR_MW01_25MBG,	BR_MW01_49MBGS	22-NOV-2013	09-DEC-2013	20-DEC-2013	✓	10-DEC-2013	20-DEC-2013	✓
Soil Glass Jar - Unpreserved (EG035T) BR_MW06_12MBGS, BR_MW11_9MBGS	BR_MW06_18MBGS,	26-NOV-2013	09-DEC-2013	24-DEC-2013	✓	10-DEC-2013	24-DEC-2013	✓
Soil Glass Jar - Unpreserved (EG035T) BR_MW09_2-3MBGS, BN_MW01_2MBGS, BN_MW02_2MBGS,	D01_271113_WG, BN_MW01_10MBGS, BN_MW02_10MBGS	27-NOV-2013	09-DEC-2013	25-DEC-2013	✓	10-DEC-2013	25-DEC-2013	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP071) BR_MW01_25MBG,	BR_MW01_49MBGS	22-NOV-2013	06-DEC-2013	06-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP071) BR_MW06_12MBGS, BR_MW11_9MBGS	BR_MW06_18MBGS,	26-NOV-2013	09-DEC-2013	10-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP071) BR_MW09_2-3MBGS, BN_MW01_2MBGS, BN_MW02_2MBGS,	D01_271113_WG, BN_MW01_10MBGS, BN_MW02_10MBGS	27-NOV-2013	09-DEC-2013	11-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM)) BR_MW01_25MBG,	BR_MW01_49MBGS	22-NOV-2013	06-DEC-2013	06-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BR_MW06_12MBGS, BR_MW11_9MBGS	BR_MW06_18MBGS,	26-NOV-2013	09-DEC-2013	10-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BR_MW09_2-3MBGS, BN_MW01_2MBGS, BN_MW02_2MBGS,	D01_271113_WG, BN_MW01_10MBGS, BN_MW02_10MBGS	27-NOV-2013	09-DEC-2013	11-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓



Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) BR_MW01_25MBG,	BR_MW01_49MBGS	22-NOV-2013	06-DEC-2013	06-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BR_MW06_12MBGS, BR_MW11_9MBGS	BR_MW06_18MBGS,	26-NOV-2013	09-DEC-2013	10-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BR_MW09_2-3MBGS, BN_MW01_2MBGS, BN_MW02_2MBGS,	D01_271113_WG, BN_MW01_10MBGS, BN_MW02_10MBGS	27-NOV-2013	09-DEC-2013	11-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) B/K_WG		04-DEC-2013	07-DEC-2013	18-DEC-2013	✓	09-DEC-2013	18-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) BR_MW01_25MBG,	BR_MW01_49MBGS	22-NOV-2013	06-DEC-2013	06-DEC-2013	✓	06-DEC-2013	06-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) TSP7_WG		25-NOV-2013	07-DEC-2013	09-DEC-2013	✓	09-DEC-2013	09-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) BR_MW06_12MBGS, BR_MW11_9MBGS	BR_MW06_18MBGS,	26-NOV-2013	07-DEC-2013	10-DEC-2013	✓	09-DEC-2013	10-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) BR_MW09_2-3MBGS, BN_MW01_2MBGS, BN_MW02_2MBGS, TSC	D01_271113_WG, BN_MW01_10MBGS, BN_MW02_10MBGS,	27-NOV-2013	07-DEC-2013	11-DEC-2013	✓	09-DEC-2013	11-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Soil Glass Jar - Unpreserved (EP080) B/K_WG		04-DEC-2013	07-DEC-2013	18-DEC-2013	✓	09-DEC-2013	18-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) BR_MW01_25MBG,	BR_MW01_49MBGS	22-NOV-2013	06-DEC-2013	06-DEC-2013	✓	06-DEC-2013	06-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) TSP7_WG		25-NOV-2013	07-DEC-2013	09-DEC-2013	✓	09-DEC-2013	09-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) BR_MW06_12MBGS, BR_MW11_9MBGS	BR_MW06_18MBGS,	26-NOV-2013	07-DEC-2013	10-DEC-2013	✓	09-DEC-2013	10-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) BR_MW09_2-3MBGS, BN_MW01_2MBGS, BN_MW02_2MBGS, TSC	D01_271113_WG, BN_MW01_10MBGS, BN_MW02_10MBGS,	27-NOV-2013	07-DEC-2013	11-DEC-2013	✓	09-DEC-2013	11-DEC-2013	✓

Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_221113_WG	22-NOV-2013	07-DEC-2013	21-MAY-2014	✔	09-DEC-2013	21-MAY-2014	✔
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_261113_WG	26-NOV-2013	07-DEC-2013	25-MAY-2014	✔	09-DEC-2013	25-MAY-2014	✔
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_271113_WG	27-NOV-2013	07-DEC-2013	26-MAY-2014	✔	09-DEC-2013	26-MAY-2014	✔
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_221113_WG	22-NOV-2013	----	----	----	09-DEC-2013	20-DEC-2013	✔
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_261113_WG	26-NOV-2013	----	----	----	09-DEC-2013	24-DEC-2013	✔
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_271113_WG	27-NOV-2013	----	----	----	09-DEC-2013	25-DEC-2013	✔
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) R01_221113_WG	22-NOV-2013	09-DEC-2013	29-NOV-2013	✖	09-DEC-2013	18-JAN-2014	✔
Amber Glass Bottle - Unpreserved (EP071) R01_261113_WG	26-NOV-2013	09-DEC-2013	03-DEC-2013	✖	09-DEC-2013	18-JAN-2014	✔
Amber Glass Bottle - Unpreserved (EP071) R01_271113_WG	27-NOV-2013	09-DEC-2013	04-DEC-2013	✖	09-DEC-2013	18-JAN-2014	✔
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_221113_WG	22-NOV-2013	09-DEC-2013	29-NOV-2013	✖	09-DEC-2013	18-JAN-2014	✔
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_261113_WG	26-NOV-2013	09-DEC-2013	03-DEC-2013	✖	09-DEC-2013	18-JAN-2014	✔
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_271113_WG	27-NOV-2013	09-DEC-2013	04-DEC-2013	✖	09-DEC-2013	18-JAN-2014	✔
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_221113_WG	22-NOV-2013	09-DEC-2013	29-NOV-2013	✖	09-DEC-2013	18-JAN-2014	✔
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_261113_WG	26-NOV-2013	09-DEC-2013	03-DEC-2013	✖	09-DEC-2013	18-JAN-2014	✔
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_271113_WG	27-NOV-2013	09-DEC-2013	04-DEC-2013	✖	09-DEC-2013	18-JAN-2014	✔
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) R01_221113_WG	22-NOV-2013	06-DEC-2013	06-DEC-2013	✔	06-DEC-2013	06-DEC-2013	✔
Amber VOC Vial - Sulfuric Acid (EP080) R01_261113_WG	26-NOV-2013	09-DEC-2013	10-DEC-2013	✔	10-DEC-2013	10-DEC-2013	✔
Amber VOC Vial - Sulfuric Acid (EP080) R01_271113_WG	27-NOV-2013	09-DEC-2013	11-DEC-2013	✔	10-DEC-2013	11-DEC-2013	✔



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Amber VOC Vial - Sulfuric Acid (EP080) R01_221113_WG	22-NOV-2013	06-DEC-2013	06-DEC-2013	✓	06-DEC-2013	06-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP080) R01_261113_WG	26-NOV-2013	09-DEC-2013	10-DEC-2013	✓	10-DEC-2013	10-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP080) R01_271113_WG	27-NOV-2013	09-DEC-2013	11-DEC-2013	✓	10-DEC-2013	11-DEC-2013	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Electrical Conductivity (1:5)	EA010	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Electrical Conductivity (1:5)	EA010	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Electrical Conductivity (1:5)	EA010	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	15	13.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP) - Continued							
TPH - Semivolatile Fraction	EP071	2	14	14.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	14	7.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	14	7.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	14	7.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Electrical Conductivity (1:5)	EA010	SOIL	(APHA 21st ed., 2510) Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 104)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)



<i>Analytical Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005T: Total Metals by ICP-AES	ES1326688-009	BR_MW06_18MBGS	Zinc	7440-66-6	26.7 %	0-20%	RPD exceeds LOR based limits

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075(SIM)A: Phenolic Compounds	3818388-002	----	Phenol	108-95-2	66.2 %	24.5-61.9%	Recovery greater than upper control limit
EP075(SIM)A: Phenolic Compounds	3818388-002	----	2-Chlorophenol	95-57-8	63.5 %	63.8-110%	Recovery less than lower control limit

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Matrix Spike outliers occur.

Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075(SIM)S: Phenolic Compound Surrogates	ES1326688-010	BR_MW11_9MBGS	2,4,6-Tribromophenol	118-79-6	37.4 %	40-138 %	Recovery less than lower data quality objective
EP075(SIM)T: PAH Surrogates	ES1326688-010	BR_MW11_9MBGS	4-Terphenyl-d14	1718-51-0	63.4 %	65-129 %	Recovery less than lower data quality objective

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: **SOIL**

Method	Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002 : pH (Soils)							
Soil Glass Jar - Unpreserved	BR_MW01_25MBG,	BR_MW01_49MBGS	09-DEC-2013	29-NOV-2013	10	----	----
Soil Glass Jar - Unpreserved	BR_MW06_12MBGS,	BR_MW06_18MBGS,	09-DEC-2013	03-DEC-2013	6	----	----
	BR_MW11_9MBGS						



Matrix: **SOIL**

Method Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002 : pH (Soils) - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved BR_MW09_2-3MBGS, D01_271113_WG, BN_MW01_2MBGS, BN_MW01_10MBGS, BN_MW02_2MBGS, BN_MW02_10MBGS	09-DEC-2013	04-DEC-2013	5	----	----	----
EA010: Conductivity						
Soil Glass Jar - Unpreserved BR_MW01_25MBG, BR_MW01_49MBGS	09-DEC-2013	29-NOV-2013	10	----	----	----
Soil Glass Jar - Unpreserved BR_MW06_12MBGS, BR_MW11_9MBGS BR_MW06_18MBGS,	09-DEC-2013	03-DEC-2013	6	----	----	----
Soil Glass Jar - Unpreserved BR_MW09_2-3MBGS, D01_271113_WG, BN_MW01_2MBGS, BN_MW01_10MBGS, BN_MW02_2MBGS, BN_MW02_10MBGS	09-DEC-2013	04-DEC-2013	5	----	----	----
EA055: Moisture Content						
Soil Glass Jar - Unpreserved BR_MW01_25MBG, BR_MW01_49MBGS	----	----	----	09-DEC-2013	06-DEC-2013	3

Matrix: **WATER**

Method Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP075(SIM)A: Phenolic Compounds						
Amber Glass Bottle - Unpreserved R01_221113_WG	09-DEC-2013	29-NOV-2013	10	----	----	----
Amber Glass Bottle - Unpreserved R01_261113_WG	09-DEC-2013	03-DEC-2013	6	----	----	----
Amber Glass Bottle - Unpreserved R01_271113_WG	09-DEC-2013	04-DEC-2013	5	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Amber Glass Bottle - Unpreserved R01_221113_WG	09-DEC-2013	29-NOV-2013	10	----	----	----
Amber Glass Bottle - Unpreserved R01_261113_WG	09-DEC-2013	03-DEC-2013	6	----	----	----
Amber Glass Bottle - Unpreserved R01_271113_WG	09-DEC-2013	04-DEC-2013	5	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
Amber Glass Bottle - Unpreserved R01_221113_WG	09-DEC-2013	29-NOV-2013	10	----	----	----
Amber Glass Bottle - Unpreserved R01_261113_WG	09-DEC-2013	03-DEC-2013	6	----	----	----



Matrix: **WATER**

Method Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP080/071: Total Petroleum Hydrocarbons - Analysis Holding Time Compliance						
Amber Glass Bottle - Unpreserved R01_271113_WG	09-DEC-2013	04-DEC-2013	5	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013						
Amber Glass Bottle - Unpreserved R01_221113_WG	09-DEC-2013	29-NOV-2013	10	----	----	----
Amber Glass Bottle - Unpreserved R01_261113_WG	09-DEC-2013	03-DEC-2013	6	----	----	----
Amber Glass Bottle - Unpreserved R01_271113_WG	09-DEC-2013	04-DEC-2013	5	----	----	----

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

6692

CHAIN OF CUSTODY
ALS Laboratory (Phone 611-5)

CLIENT: ERM
OFFICE: Sydney
PROJECT: Project Symphony

ORDER NUMBER: 0224193
PROJECT MANAGER: Joseph Fering
SAMPLER: Stephen Mulligan

CONTACT PI: Stephen Mulligan
SAMPLER MOBILE: Stephen Mulligan
EDD FORMAT (or default): YES / NO

TURNAROUND REQUIREMENTS:
Standard TAT may be longer for some tests eq. Ultra Trace Elements.
 Standard TAT (List due date)
 Non Standard or urgent TAT (List due date)

ALS QUOTE NO.: SYD-2007-001
SITE: BAYSWATER LINDSELL

COC SEQUENCE NUMBER (Circle):
COC: 1 2 3 4 5 6 7
OFL: 1 2 3 4 5 6 7

FOR LABORATORY USE ONLY (Circle):
Closely Seal Bag? Yes No N/A
From Ice / frozen Ice bags present upon receipt? Yes No N/A
Random Sample Temperature on Receipt: °C
Other comment:

RECEIVED BY: Stephen Mulligan
DATE/TIME: 4.12.13 19:00

RELINQUISHED BY: Stephen Mulligan
DATE/TIME: 28/11/13

RECEIVED BY: _____
DATE/TIME: _____

RELINQUISHED BY: _____
DATE/TIME: _____

ANALYSIS REQUIRED INCLUDING SUITES (NL Suite Codes must be listed in zipped, sealed bags)
Where listed you required, specify Total (for total bags required) or Dissolved (for filtered bags required).

LAB ID	SAMPLE ID	MATRIX	DATE / TIME	TYPE & PRESERVATIVE codes (below)	CONTAINER INFORMATION (refer to)	TOTAL CONTAINERS	5-2 Metals (As, Ba, Cd, Cr, Cu, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Cd, Cr, Cu, Ni, Mn, Ni, Pb, V, Zn, Bi, Mo, Ti, Se)	S-24 TRHCs (Co, Ni, Pb, Cr, Mn, Hg)	Phenols	VOC Target Scan	PCB	pH (1:5)	Exchangeable cations (ED07)	PFOS/PFOA	Asbestos (absence/presence)	Particle Sizing to 75µm (Sieve)	Organic Matter plus Total Organic Carbon (EPO4)	Additional Information
1	BB-MW04-9.5	soil	28/11/13	1 Jar	1 Jar	1	X	X	X	X	X	X	X	X	X	X	X	X	Etched (paste)
2	BB-MW03-3.6	soil	28/11/13	1 Jar	1 Jar	1	X	X	X	X	X	X	X	X	X	X	X	X	X
3	BB-MW03-5.9	soil	28/11/13	1 Jar	1 Jar	1	X	X	X	X	X	X	X	X	X	X	X	X	X
4	BO-MW03-0.2	soil	28/11/13	1 x Jar, 1 x Bag	1 x Jar, 1 x Bag	2	X	X	X	X	X	X	X	X	X	X	X	X	X
5	BO-MW04-0.5	soil	28/11/13	1 x Jar, 1 x Bag	1 x Jar, 1 x Bag	2	X	X	X	X	X	X	X	X	X	X	X	X	X
6	5Q-MW06-2.0	soil	28/11/13	1 Jar	1 Jar	1	X	X	X	X	X	X	X	X	X	X	X	X	X
7	BQ-MW05-2.0	soil	28/11/13	1 Jar	1 Jar	1	X	X	X	X	X	X	X	X	X	X	X	X	X
8	BQ-MW07-2.0	soil	28/11/13	1 Jar	1 Jar	1	X	X	X	X	X	X	X	X	X	X	X	X	X
9	BO-MW01-0.1	soil	28/11/13	1 x Jar, 1 x Bag	1 x Jar, 1 x Bag	2	X	X	X	X	X	X	X	X	X	X	X	X	X

Subcontracted Lab / Split WO
Lab / Analysis: ALS / ERM

Organised By / Date: _____
Relinquished By / Date: _____

Comments/SPECIAL HANDLING/STORAGE OR DISPOSAL:

Environmental Division
Sydney
Work Order
ES1326692



Telephone: +61-2-8784 8555

Connote / Courier: _____
WO No: _____
Attach By: _____ / **Internal Sheet:** _____

Water Contaminant Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORG = Nitric Preserved Organic; S = Sodium Hydroxide Preserved; S+ = Sodium Hydroxide Preserved; S- = Sodium Hydroxide Preserved; S0 = Sulfuric Preserved Plastic; F = Fertilizer Preserved Plastic; V = VOA Vol HCl Preserved; VB = VOA Vol Sulfuric Preserved; AV = Airflight Unpreserved Vol SG = Sulfuric Preserved Amber Glass; VV = VOA Vol HCl Preserved; VS = VOA Vol Sulfuric Preserved; VS+ = VOA Vol Sulfuric Preserved; VS- = VOA Vol Sulfuric Preserved; VS0 = Sulfuric Preserved Amber Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Strontium Bottle; AOB = Plastic Bin for Acid Sulphate Soils; B = Unpreserved Bins.

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1326692	
Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800	E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555
Project : Project Symphony Order number : 0224193 C-O-C number : ---- Site : BAYSWATER Sampler : WG	Page : 1 of 2 Quote number : ES2013ENVRES0369 (SY/794/13) QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 04-DEC-2013 Client Requested Due Date : 11-DEC-2013	Issue Date : 06-DEC-2013 17:51 Scheduled Reporting Date : 11-DEC-2013
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Delivery Details

Mode of Delivery : Carrier No. of coolers/boxes : 1 HARD Security Seal : Intact.	Temperature : 4.2°C - Ice present No. of samples received : 9 No. of samples analysed : 9
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General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **PSD analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **All analysis will be reported on the scheduled due date 11/12/13, except for PSD analysis will be reported on 13/12/13**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA032 Electrical Conductivity (Saturated Paste)	SOIL - EA150* Particle Size Analysis by Sieving (Default sieves from SOIL - ED007)	SOIL - ED007 CEC / Exchangeable Cations (ED007) -All	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - EP004 (Carbon) Total Organic Carbon (Calc.)	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - S-24 TRHIBTEXNPAH + Phenols
ES1326692-001	28-NOV-2013 15:00	BB_MW04_9.5	✓	✓		✓	✓			✓
ES1326692-002	28-NOV-2013 15:00	BB_MW03_3.6	✓	✓		✓	✓			✓
ES1326692-003	28-NOV-2013 15:00	BB_MW03_5.9	✓	✓		✓	✓			✓
ES1326692-004	28-NOV-2013 15:00	BO_MW03_0.2	✓	✓		✓	✓			✓
ES1326692-005	28-NOV-2013 15:00	BO_MW04_0.5	✓	✓	✓	✓	✓	✓		✓
ES1326692-006	28-NOV-2013 15:00	BQ_MW06_2.0	✓	✓		✓	✓			✓
ES1326692-007	28-NOV-2013 15:00	BQ_MW05_2.0	✓	✓			✓	✓	✓	✓
ES1326692-008	28-NOV-2013 15:00	BQ_MW07_2.0	✓	✓			✓	✓	✓	✓
ES1326692-009	28-NOV-2013 15:00	BQ_MW01_0.1	✓	✓		✓	✓			✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA)	Email	joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	joseph.ferring@erm.com
- Chain of Custody (CoC) (COC)	Email	joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	joseph.ferring@erm.com
- EDI Format - XTab (XTAB)	Email	joseph.ferring@erm.com

SYMPHONY ERARING

- *AU Certificate of Analysis - NATA (COA)	Email	Symphony.Eraring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Symphony.Eraring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Symphony.Eraring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Symphony.Eraring@erm.com
- Chain of Custody (CoC) (COC)	Email	Symphony.Eraring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	Symphony.Eraring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	Symphony.Eraring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	Symphony.Eraring@erm.com
- EDI Format - XTab (XTAB)	Email	Symphony.Eraring@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
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CERTIFICATE OF ANALYSIS

Work Order	: ES1326692	Page	: 1 of 13
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0224193	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 12-DEC-2013
Sampler	: WG	No. of samples received	: 9
Site	: BAYSWATER	No. of samples analysed	: 9
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BB_MW04_9.5	BB_MW03_3.6	BB_MW03_5.9	BO_MW03_0.2	BO_MW04_0.5
				28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326692-001	ES1326692-002	ES1326692-003	ES1326692-004	ES1326692-005
EA150: Particle Sizing								
+75µm	----	1	%	----	----	----	----	2
+150µm	----	1	%	----	----	----	----	<1
+300µm	----	1	%	----	----	----	----	<1
+425µm	----	1	%	----	----	----	----	<1
+600µm	----	1	%	----	----	----	----	<1
+1180µm	----	1	%	----	----	----	----	<1
+2.36mm	----	1	%	----	----	----	----	<1
+4.75mm	----	1	%	----	----	----	----	<1
+9.5mm	----	1	%	----	----	----	----	<1
+19.0mm	----	1	%	----	----	----	----	<1
+37.5mm	----	1	%	----	----	----	----	<1
+75.0mm	----	1	%	----	----	----	----	<1
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	7.3	4.2	7.5	8.1	7.8
EA032: Electrical Conductivity (saturated paste)								
Electrical Conductivity (Saturated Paste)	----	1	µS/cm	4580	960	4900	596	2890
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	20.7	11.8	21.6	19.7	17.0
EA150: Soil Classification based on Particle Size								
Fines (<75 µm)	----	1	%	----	----	----	----	98
Sand (>75 µm)	----	1	%	----	----	----	----	2
Gravel (>2mm)	----	1	%	----	----	----	----	<1
Cobbles (>6cm)	----	1	%	----	----	----	----	<1
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	11.9	18.8	3.8	8.0	8.3
Exchangeable Magnesium	----	0.1	meq/100g	3.0	1.0	6.4	3.3	6.9
Exchangeable Potassium	----	0.1	meq/100g	0.5	0.2	0.6	0.3	<0.1
Exchangeable Sodium	----	0.1	meq/100g	0.1	<0.1	0.2	<0.1	0.6
Cation Exchange Capacity	----	0.1	meq/100g	15.5	20.1	11.0	11.7	15.9
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	29	8	8	10	14
Barium	7440-39-3	10	mg/kg	50	10	40	70	210



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BB_MW04_9.5	BB_MW03_3.6	BB_MW03_5.9	BO_MW03_0.2	BO_MW04_0.5
				28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326692-001	ES1326692-002	ES1326692-003	ES1326692-004	ES1326692-005
EG005T: Total Metals by ICP-AES - Continued								
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	1	<1	<1	<1	1
Chromium	7440-47-3	2	mg/kg	9	11	13	10	22
Cobalt	7440-48-4	2	mg/kg	12	4	8	5	12
Copper	7440-50-8	5	mg/kg	26	21	26	13	24
Lead	7439-92-1	5	mg/kg	18	10	15	10	17
Manganese	7439-96-5	5	mg/kg	304	19	251	116	298
Molybdenum	7439-98-7	2	mg/kg	2	<2	<2	<2	<2
Nickel	7440-02-0	2	mg/kg	38	16	24	11	28
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	20	20	31	25	55
Zinc	7440-66-6	5	mg/kg	91	73	65	31	49
Titanium	7440-32-6	10	mg/kg	20	<10	<10	40	90
EP004: Organic Matter								
Organic Matter	----	0.5	%	----	----	----	----	0.9
Total Organic Carbon	----	0.5	%	----	----	----	----	0.5
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	1.8	<0.5	1.3	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BB_MW04_9.5	BB_MW03_3.6	BB_MW03_5.9	BO_MW03_0.2	BO_MW04_0.5
				28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326692-001	ES1326692-002	ES1326692-003	ES1326692-004	ES1326692-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	0.7	<0.5	0.7	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	2.5	<0.5	2.0	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	19	<10	12	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	22	<10	13	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	21	<10	13	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.3	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	0.6	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BB_MW04_9.5	BB_MW03_3.6	BB_MW03_5.9	BO_MW03_0.2	BO_MW04_0.5
				28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326692-001	ES1326692-002	ES1326692-003	ES1326692-004	ES1326692-005
EP080: BTEXN - Continued								
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	0.8	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	1.4	<0.2	0.3	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	0.8	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	95.3	108	111	97.9	106
2-Chlorophenol-D4	93951-73-6	0.1	%	78.7	102	111	87.7	96.3
2,4,6-Tribromophenol	118-79-6	0.1	%	94.8	86.2	85.5	92.3	85.0
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	106	110	114	105	105
Anthracene-d10	1719-06-8	0.1	%	98.6	89.4	93.8	91.1	89.0
4-Terphenyl-d14	1718-51-0	0.1	%	90.5	81.9	85.4	83.4	82.0
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	91.6	98.8	99.5	96.6	108
Toluene-D8	2037-26-5	0.1	%	105	111	105	109	94.2
4-Bromofluorobenzene	460-00-4	0.1	%	104	107	99.6	107	92.3



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BQ_MW06_2.0	BQ_MW05_2.0	BQ_MW07_2.0	BQ_MW01_0.1	----
				28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326692-006	ES1326692-007	ES1326692-008	ES1326692-009	----
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	9.4	4.4	6.3	7.4	----
EA032: Electrical Conductivity (saturated paste)								
Electrical Conductivity (Saturated Paste)	----	1	µS/cm	1660	1860	1240	320	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	15.5	18.7	18.7	17.3	----
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	8.9	----	----	23.8	----
Exchangeable Magnesium	----	0.1	meq/100g	7.4	----	----	2.3	----
Exchangeable Potassium	----	0.1	meq/100g	0.1	----	----	0.3	----
Exchangeable Sodium	----	0.1	meq/100g	0.7	----	----	<0.1	----
Cation Exchange Capacity	----	0.1	meq/100g	17.1	----	----	26.4	----
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	<0.1	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	12	<5	14	9	----
Barium	7440-39-3	10	mg/kg	210	70	60	70	----
Beryllium	7440-41-7	1	mg/kg	1	<1	<1	<1	----
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	----
Cadmium	7440-43-9	1	mg/kg	2	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	9	6	8	9	----
Cobalt	7440-48-4	2	mg/kg	12	4	<2	7	----
Copper	7440-50-8	5	mg/kg	32	22	24	21	----
Lead	7439-92-1	5	mg/kg	22	6	16	11	----
Manganese	7439-96-5	5	mg/kg	1960	79	<5	276	----
Molybdenum	7439-98-7	2	mg/kg	4	<2	3	<2	----
Nickel	7440-02-0	2	mg/kg	24	8	<2	17	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	----
Vanadium	7440-62-2	5	mg/kg	25	16	14	20	----
Zinc	7440-66-6	5	mg/kg	81	44	9	54	----
Titanium	7440-32-6	10	mg/kg	50	60	20	20	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	0.5	mg/kg	----	<0.5	<0.5	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	<0.5	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	<0.5	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BQ_MW06_2.0	BQ_MW05_2.0	BQ_MW07_2.0	BQ_MW01_0.1	----
				28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326692-006	ES1326692-007	ES1326692-008	ES1326692-009	----
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	<0.5	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	<0.5	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	<0.5	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	<0.5	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	<0.5	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	<0.5	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	<5	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	<5	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	<5	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	<5	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	<0.5	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	<0.5	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	<0.5	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	<0.5	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	<0.5	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	<0.5	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	<5	----	----
Chloromethane	74-87-3	5	mg/kg	----	<5	<5	----	----
Vinyl chloride	75-01-4	5	mg/kg	----	<5	<5	----	----
Bromomethane	74-83-9	5	mg/kg	----	<5	<5	----	----
Chloroethane	75-00-3	5	mg/kg	----	<5	<5	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	<5	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	<0.5	----	----
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	<0.5	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	<0.5	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	<0.5	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	<0.5	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	<0.5	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	<0.5	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BQ_MW06_2.0	BQ_MW05_2.0	BQ_MW07_2.0	BQ_MW01_0.1	----
				28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326692-006	ES1326692-007	ES1326692-008	ES1326692-009	----
EP074E: Halogenated Aliphatic Compounds - Continued								
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	<0.5	----	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	<0.5	----	----
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	<0.5	----	----
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	<0.5	----	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	<0.5	----	----
1,3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	<0.5	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	<0.5	----	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	<0.5	----	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	<0.5	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	<0.5	----	----
1,1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	<0.5	----	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	<0.5	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	<0.5	----	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	<0.5	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	<0.5	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	<0.5	----	----
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	<0.5	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	<0.5	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	<0.5	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	<0.5	----	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	<0.5	----	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	<0.5	----	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	<0.5	----	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	<0.5	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	<0.5	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	<0.5	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	<0.5	----	----
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	<0.5	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	5	mg/kg	----	<5	<5	----	----
EP075(SIM)A: Phenolic Compounds								



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BQ_MW06_2.0	BQ_MW05_2.0	BQ_MW07_2.0	BQ_MW01_0.1	----
				28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326692-006	ES1326692-007	ES1326692-008	ES1326692-009	----
EP075(SIM)A: Phenolic Compounds - Continued								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BQ_MW06_2.0	BQ_MW05_2.0	BQ_MW07_2.0	BQ_MW01_0.1	----
				28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326692-006	ES1326692-007	ES1326692-008	ES1326692-009	----
EP080/071: Total Petroleum Hydrocarbons - Continued								
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	85.4	83.9	----	----
Toluene-D8	2037-26-5	0.1	%	----	118	101	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	105	88.3	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	92.0	108	104	99.6	----
2-Chlorophenol-D4	93951-73-6	0.1	%	80.6	107	107	83.1	----
2,4,6-Tribromophenol	118-79-6	0.1	%	76.5	83.7	87.4	94.7	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	89.4	111	114	101	----
Anthracene-d10	1719-06-8	0.1	%	86.9	91.4	95.9	101	----
4-Terphenyl-d14	1718-51-0	0.1	%	79.0	83.5	88.0	93.5	----
EP080S: TPH(V)/BTEX Surrogates								



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	BQ_MW06_2.0	BQ_MW05_2.0	BQ_MW07_2.0	BQ_MW01_0.1	----
28-NOV-2013 15:00					----

Client sampling date / time

28-NOV-2013 15:00					----
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Compound	CAS Number	LOR	Unit	ES1326692-006	ES1326692-007	ES1326692-008	ES1326692-009	----
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EP080S: TPH(V)/BTEX Surrogates - Continued

1,2-Dichloroethane-D4	17060-07-0	0.1	%	78.1	78.8	77.6	96.1	----
Toluene-D8	2037-26-5	0.1	%	93.0	110	93.9	104	----
4-Bromofluorobenzene	460-00-4	0.1	%	91.6	116	98.3	98.3	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Certificate of Analysis

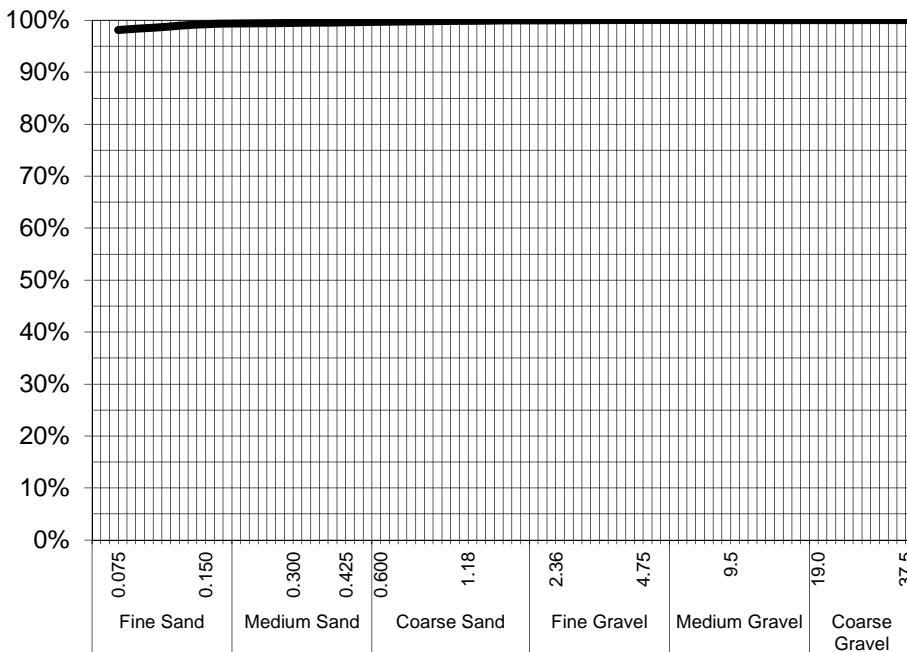
ALS Laboratory Group Pty Ltd
 5 Rosegum Road
 Warabrook, NSW 2304
 pH 02 4968 9433
 fax 02 4968 0349
 samples.newcastle@alsenviro.com

ALS Environmental
Newcastle, NSW



CLIENT: Joseph Ferring **DATE REPORTED:** 11-Dec-2013
COMPANY: Enviro Resources Management **DATE RECEIVED:** 4-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1326692-005 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** BO_MW04_0.5

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	100%
2.36	100%
1.18	100%
0.600	100%
0.425	100%
0.300	100%
0.150	99%
0.075	98%

Samples analysed as received.

Sample Comments:

Analysed: 10-Dec-13

Loss on Pretreatment: NA

Limit of Reporting: 1%

Sample Description: Fines

Test Method: AS1289.3.6.1

NATA Accreditation: 825 Site: Newcastle
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 reproduced, except in full.



Hamish Murray
 Laboratory Supervisor, Newcastle
Authorised Signatory

QUALITY CONTROL REPORT

Work Order	: ES1326692	Page	: 1 of 18
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 12-DEC-2013
Sampler	: WG	No. of samples received	: 9
Order number	: 0224193	No. of samples analysed	: 9
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC



NATA Accredited
Laboratory 825

Accredited for
compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA002 : pH (Soils) (QC Lot: 3200605)									
ES1326688-006	Anonymous	EA002: pH Value	----	0.1	pH Unit	7.3	7.2	0.0	0% - 20%
ES1326688-016	Anonymous	EA002: pH Value	----	0.1	pH Unit	9.2	9.2	0.0	0% - 20%
EA032: Electrical Conductivity (saturated paste) (QC Lot: 3203242)									
ES1326692-001	BB_MW04_9.5	EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	4580	4020	13.0	0% - 20%
EA055: Moisture Content (QC Lot: 3201226)									
ES1326688-013	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	5.8	5.7	0.0	No Limit
ES1326692-004	BO_MW03_0.2	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	19.7	19.0	3.3	0% - 50%
ED007: Exchangeable Cations (QC Lot: 3200405)									
ES1326692-001	BB_MW04_9.5	ED007: Exchangeable Calcium	----	0.1	meq/100g	11.9	10.9	8.5	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	3.0	3.5	14.7	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.5	0.6	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.1	0.2	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	15.5	15.1	2.6	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
ES1326693-003	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	57.0	55.7	2.3	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	2.9	2.9	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.1	0.1	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.4	0.4	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	60.4	59.0	2.4	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 3204429)									
ES1326693-003	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	2	2	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	30	30	0.0	No Limit
		EG005T: Titanium	7440-32-6	10	mg/kg	130	140	7.5	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	24	25	4.6	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	13	7	55.4	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	28	26	4.6	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	19	20	5.4	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	39	34	13.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	22	21	4.8	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	304	272	11.2	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	45	43	3.3	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005T: Total Metals by ICP-AES (QC Lot: 3204429) - continued									
ES1326693-003	Anonymous	EG005T: Zinc	7440-66-6	5	mg/kg	89	71	22.5	0% - 50%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
ES1326693-002	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	1	1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	40	90	73.8	No Limit
		EG005T: Titanium	7440-32-6	10	mg/kg	100	100	0.0	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	23	22	6.0	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	7	7	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	3	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	22	22	0.0	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	75	71	5.4	0% - 50%
		EG005T: Copper	7440-50-8	5	mg/kg	30	29	5.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	13	36	91.6	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	148	149	1.1	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	58	58	0.0	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	86	89	4.5	0% - 50%
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
EP004: Organic Matter (QC Lot: 3203037)									
ES1326325-001	Anonymous	EP004: Organic Matter	----	0.5	%	3.8	3.8	0.0	No Limit
		EP004: Total Organic Carbon	----	0.5	%	2.2	2.2	0.0	No Limit
ES1326596-005	Anonymous	EP004: Organic Matter	----	0.5	%	<0.5	<0.5	0.0	No Limit
		EP004: Total Organic Carbon	----	0.5	%	<0.5	<0.5	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3199459)									
ES1326681-005	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 3199459)									
ES1326681-005	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3199459)									
ES1326681-005	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074D: Fumigants (QC Lot: 3199459)									
ES1326681-005	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3199459)									
ES1326681-005	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
EP074F: Halogenated Aromatic Compounds (QC Lot: 3199459)									
ES1326681-005	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074F: Halogenated Aromatic Compounds (QC Lot: 3199459) - continued									
ES1326681-005	Anonymous	EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 3199459)									
ES1326681-005	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3199459)									
ES1326681-005	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3201612)									
ES1326692-001	BB_MW04_9.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		ES1326692-009	BQ_MW01_0.1	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5
EP075(SIM): 2-Chlorophenol	95-57-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			1	mg/kg	<1	<1	0.0	No Limit
EP075(SIM): Pentachlorophenol	87-86-5			2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3201612)									
ES1326692-001	BB_MW04_9.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	1.8	1.4	21.2	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3201612) - continued									
ES1326692-001	BB_MW04_9.5	EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	0.7	0.5	23.5	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	2.5	1.9	27.3	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1326692-009	BQ_MW01_0.1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3199458)									
ES1326681-005	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1326681-009	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3199540)									
ES1326323-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3199540) - continued									
ES1326692-004	BO_MW03_0.2	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3201611)									
ES1326692-001	BB_MW04_9.5	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1326692-009	BQ_MW01_0.1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3199458)									
ES1326681-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1326681-009	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3199540)									
ES1326323-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1326692-004	BO_MW03_0.2	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3201611)									
ES1326692-001	BB_MW04_9.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1326692-009	BQ_MW01_0.1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 3199458)									
ES1326681-005	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1326681-009	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit		
EP080: BTEXN (QC Lot: 3199540)									
ES1326323-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 3199540) - continued									
ES1326323-001	Anonymous	EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1326692-004	BO_MW03_0.2	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EA032: Electrical Conductivity (saturated paste) (QCLot: 3203242)									
EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	<1	1412 µS/cm	101	96	104	
ED007: Exchangeable Cations (QCLot: 3200405)									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3204429)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	118	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	117	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	124	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	116	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	116	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	113	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	119	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	110	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	125	85	127	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	126	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	122	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	108	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	121	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	110	81	133	
EG005T: Titanium	7440-32-6	10	mg/kg	<10	----	----	----	----	
EP004: Organic Matter (QCLot: 3203037)									
EP004: Organic Matter	----	0.5	%	<0.5	4.58 %	95.5	85	105	
EP004: Total Organic Carbon	----	0.5	%	<0.5	2.66 %	95.4	84	106	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3199459)									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	108	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	118	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	94.3	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	98.1	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	96.3	64	130	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3199459) - continued									
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	97.9	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	100	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	95.2	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	89.6	61	131	
EP074B: Oxygenated Compounds (QCLot: 3199459)									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	91.3	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	105	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	92.0	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	87.2	54	136	
		5	mg/kg	<5	----	----	----	----	
EP074C: Sulfonated Compounds (QCLot: 3199459)									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	88.4	54	126	
EP074D: Fumigants (QCLot: 3199459)									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	80.9	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	91.0	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	89.9	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	78.6	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	102	66	126	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3199459)									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	61.3	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	71.2	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	75.4	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	63.9	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	63.5	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	72.9	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	62.7	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	72.4	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	97.1	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	90.5	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	100	66	132	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3199459) - continued									
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	99.6	62	126	
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	106	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	111	59	125	
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	90.2	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	104	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	99.3	65	127	
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	111	70	130	
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	96.4	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	113	67	143	
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	99.0	62	122	
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	111	54	128	
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	89.3	55	129	
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	98.1	56	132	
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	94.8	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	113	19.8	134	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	70.4	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	107	48	136	
EP074F: Halogenated Aromatic Compounds (QCLot: 3199459)									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	102	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	104	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	87.1	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	98.3	62	130	
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	97.6	63	129	
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	93.8	63	129	
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	86.3	66	128	
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	113	54	134	
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	98.4	60	132	
EP074G: Trihalomethanes (QCLot: 3199459)									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	94.1	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	97.4	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	119	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	108	60	126	
EP074H: Naphthalene (QCLot: 3199459)									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	88.7	63	133	
		5	mg/kg	<5	----	----	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3201612)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	107	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	103	74	116	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 3201612) - continued									
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	102	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	106	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	82.2	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	90.1	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	90.8	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	94.6	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	88.7	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	84.3	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	87.8	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	26.1	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3201612)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	111	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	93.3	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	97.5	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	98.2	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	100	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	98.4	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	98.5	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	99.7	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	110	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	112	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	108	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	105	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	103	76	122	
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	111	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	111	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	98.0	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199458)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	78.1	68.4	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199540)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	107	68.4	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3201611)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	92.8	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	106	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	95.0	64	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199458)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	78.5	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199540)									



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199540) - continued									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	104	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3201611)									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	100	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	102	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	81.4	63	131	
EP080: BTEXN (QCLot: 3199458)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	82.6	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	86.5	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	80.5	58	118	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	81.4	60	120	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	84.2	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	96.0	62	138	
EP080: BTEXN (QCLot: 3199540)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	88.9	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	93.1	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	92.0	58	118	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	93.8	60	120	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	98.0	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	89.4	62	138	

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	High
EG005T: Total Metals by ICP-AES (QCLot: 3204429)								
ES1326693-003	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	120	70	130	
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	70	130	
		EG005T: Chromium	7440-47-3	50 mg/kg	112	70	130	
		EG005T: Copper	7440-50-8	125 mg/kg	109	70	130	
		EG005T: Lead	7439-92-1	125 mg/kg	123	70	130	
		EG005T: Nickel	7440-02-0	50 mg/kg	111	70	130	
		EG005T: Selenium	7782-49-2	50 mg/kg	113	70	130	
		EG005T: Zinc	7440-66-6	125 mg/kg	89.4	70	130	



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP004: Organic Matter (QCLot: 3203037)							
ES1326325-002	Anonymous	EP004: Organic Matter	----	0.47 %	126	----	----
		EP004: Total Organic Carbon	----	0.27 %	96.3	----	----
EP074E: Halogenated Aliphatic Compounds (QCLot: 3199459)							
ES1326681-005	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	71.5	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	82.9	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3199459)							
ES1326681-005	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	84.3	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3201612)							
ES1326692-001	BB_MW04_9.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	116	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	116	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	101	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	106	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	56.3	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3201612)							
ES1326692-001	BB_MW04_9.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	119	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	108	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199458)							
ES1326681-005	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	106	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199540)							
ES1326323-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	116	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3201611)							
ES1326692-001	BB_MW04_9.5	EP071: C10 - C14 Fraction	----	640 mg/kg	79.1	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	79.5	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	69.3	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199458)							
ES1326681-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	104	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199540)							
ES1326323-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	111	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3201611)							
ES1326692-001	BB_MW04_9.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	99.0	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	73.2	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	53.2	52	132
EP080: BTEXN (QCLot: 3199458)							
ES1326681-005	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	85.6	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	90.5	70	130



Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 3199458) - continued							
ES1326681-005	Anonymous	EP080: Ethylbenzene	100-41-4	2.5 mg/kg	88.7	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	86.0	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	92.5	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	83.5	70	130
EP080: BTEXN (QCLot: 3199540)							
ES1326323-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	102	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	87.7	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	82.4	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	95.2	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	88.0	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	72.8	70	130

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199458)										
ES1326681-005	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	106	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199458)										
ES1326681-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	104	----	70	130	----	----
EP080: BTEXN (QCLot: 3199458)										
ES1326681-005	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	85.6	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	90.5	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	88.7	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	86.0	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	92.5	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	83.5	----	70	130	----	----
EP074E: Halogenated Aliphatic Compounds (QCLot: 3199459)										
ES1326681-005	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	71.5	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	82.9	----	70	130	----	----
EP074F: Halogenated Aromatic Compounds (QCLot: 3199459)										
ES1326681-005	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	84.3	----	70	130	----	----



Sub-Matrix: SOIL					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number								
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199540)											
ES1326323-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	116	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199540)											
ES1326323-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	111	----	70	130	----	----	
EP080: BTEXN (QCLot: 3199540)											
ES1326323-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	102	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	87.7	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	82.4	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	95.2	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	88.0	----	70	130	----	----	
	EP080: Naphthalene	91-20-3		2.5 mg/kg	72.8	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3201611)											
ES1326692-001	BB_MW04_9.5	EP071: C10 - C14 Fraction	----	640 mg/kg	79.1	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	79.5	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	69.3	----	52	132	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3201611)											
ES1326692-001	BB_MW04_9.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	99.0	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	73.2	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	53.2	----	52	132	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3201612)											
ES1326692-001	BB_MW04_9.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	116	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	116	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	101	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	106	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	56.3	----	20	130	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3201612)											
ES1326692-001	BB_MW04_9.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	119	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	108	----	70	130	----	----	
EP004: Organic Matter (QCLot: 3203037)											
ES1326325-002	Anonymous	EP004: Organic Matter	----	0.47 %	126	----	----	----	----	----	
		EP004: Total Organic Carbon	----	0.27 %	96.3	----	----	----	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3204429)											
ES1326693-003	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	120	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	112	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	109	----	70	130	----	----	
		EG005T: Lead	7439-92-1	125 mg/kg	123	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	111	----	70	130	----	----	



Sub-Matrix: **SOIL**

					<i>Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report</i>					
<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>Spike</i>	<i>Spike Recovery (%)</i>		<i>Recovery Limits (%)</i>		<i>RPDs (%)</i>	
				<i>Concentration</i>	<i>MS</i>	<i>MSD</i>	<i>Low</i>	<i>High</i>	<i>Value</i>	<i>Control Limit</i>
EG005T: Total Metals by ICP-AES (QCLot: 3204429) - continued										
ES1326693-003	Anonymous	EG005T: Selenium	7782-49-2	50 mg/kg	113	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	89.4	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326692	Page	: 1 of 9
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 12-DEC-2013
Sampler	: WG	No. of samples received	: 9
Order number	: 0224193	No. of samples analysed	: 9
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA002 : pH (Soils)								
Soil Glass Jar - Unpreserved (EA002) BB_MW04_9.5, BB_MW03_5.9, BO_MW04_0.5, BQ_MW05_2.0, BQ_MW01_0.1	BB_MW03_3.6, BO_MW03_0.2, BQ_MW06_2.0, BQ_MW07_2.0	28-NOV-2013	09-DEC-2013	05-DEC-2013	*	09-DEC-2013	09-DEC-2013	✓
EA032: Electrical Conductivity (saturated paste)								
Soil Glass Jar - Unpreserved (EA032) BB_MW04_9.5, BB_MW03_5.9, BO_MW04_0.5, BQ_MW05_2.0, BQ_MW01_0.1	BB_MW03_3.6, BO_MW03_0.2, BQ_MW06_2.0, BQ_MW07_2.0	28-NOV-2013	----	----	----	12-DEC-2013	27-MAY-2014	✓
EA055: Moisture Content								
Soil Glass Jar - Unpreserved (EA055-103) BB_MW04_9.5, BB_MW03_5.9, BO_MW04_0.5, BQ_MW05_2.0, BQ_MW01_0.1	BB_MW03_3.6, BO_MW03_0.2, BQ_MW06_2.0, BQ_MW07_2.0	28-NOV-2013	----	----	----	09-DEC-2013	12-DEC-2013	✓
EA150: Particle Sizing								
Snap Lock Bag (EA150) BO_MW04_0.5		28-NOV-2013	---	27-MAY-2014	----	11-DEC-2013	08-JUN-2014	✓
EA150: Soil Classification based on Particle Size								
Snap Lock Bag (EA150) BO_MW04_0.5		28-NOV-2013	---	27-MAY-2014	----	11-DEC-2013	08-JUN-2014	✓
ED007: Exchangeable Cations								
Soil Glass Jar - Unpreserved (ED007) BB_MW04_9.5, BB_MW03_5.9, BO_MW04_0.5, BQ_MW01_0.1	BB_MW03_3.6, BO_MW03_0.2, BQ_MW06_2.0	28-NOV-2013	09-DEC-2013	26-DEC-2013	✓	10-DEC-2013	26-DEC-2013	✓



Matrix: **SOIL** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) BB_MW04_9.5, BB_MW03_3.6, BB_MW03_5.9, BO_MW03_0.2, BO_MW04_0.5, BQ_MW06_2.0, BQ_MW05_2.0, BQ_MW07_2.0, BQ_MW01_0.1	28-NOV-2013	10-DEC-2013	27-MAY-2014	✓	11-DEC-2013	27-MAY-2014	✓
EP004: Organic Matter							
Soil Glass Jar - Unpreserved (EP004) BO_MW04_0.5	28-NOV-2013	12-DEC-2013	26-DEC-2013	✓	12-DEC-2013	26-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Soil Glass Jar - Unpreserved (EP071) BB_MW04_9.5, BB_MW03_3.6, BB_MW03_5.9, BO_MW03_0.2, BO_MW04_0.5, BQ_MW06_2.0, BQ_MW05_2.0, BQ_MW07_2.0, BQ_MW01_0.1	28-NOV-2013	11-DEC-2013	12-DEC-2013	✓	11-DEC-2013	20-JAN-2014	✓
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074) BQ_MW05_2.0, BQ_MW07_2.0	28-NOV-2013	---	05-DEC-2013	----	09-DEC-2013	05-DEC-2013	*
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074) BQ_MW05_2.0, BQ_MW07_2.0	28-NOV-2013	---	05-DEC-2013	----	09-DEC-2013	05-DEC-2013	*
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074) BQ_MW05_2.0, BQ_MW07_2.0	28-NOV-2013	---	05-DEC-2013	----	09-DEC-2013	05-DEC-2013	*
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074) BQ_MW05_2.0, BQ_MW07_2.0	28-NOV-2013	---	05-DEC-2013	----	09-DEC-2013	05-DEC-2013	*
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074) BQ_MW05_2.0, BQ_MW07_2.0	28-NOV-2013	---	05-DEC-2013	----	09-DEC-2013	05-DEC-2013	*
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074) BQ_MW05_2.0, BQ_MW07_2.0	28-NOV-2013	---	05-DEC-2013	----	09-DEC-2013	05-DEC-2013	*
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved (EP074) BQ_MW05_2.0, BQ_MW07_2.0	28-NOV-2013	---	05-DEC-2013	----	09-DEC-2013	05-DEC-2013	*
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074) BQ_MW05_2.0, BQ_MW07_2.0	28-NOV-2013	---	05-DEC-2013	----	09-DEC-2013	05-DEC-2013	*



Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM)) BB_MW04_9.5, BB_MW03_5.9, BO_MW04_0.5, BQ_MW05_2.0, BQ_MW01_0.1	BB_MW03_3.6, BO_MW03_0.2, BQ_MW06_2.0, BQ_MW07_2.0	28-NOV-2013	11-DEC-2013	12-DEC-2013	✓	11-DEC-2013	20-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) BB_MW04_9.5, BB_MW03_5.9, BO_MW04_0.5, BQ_MW05_2.0, BQ_MW01_0.1	BB_MW03_3.6, BO_MW03_0.2, BQ_MW06_2.0, BQ_MW07_2.0	28-NOV-2013	11-DEC-2013	12-DEC-2013	✓	11-DEC-2013	20-JAN-2014	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) BQ_MW05_2.0,	BQ_MW07_2.0	28-NOV-2013	---	12-DEC-2013	----	09-DEC-2013	12-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) BB_MW04_9.5, BB_MW03_5.9, BO_MW04_0.5, BQ_MW01_0.1	BB_MW03_3.6, BO_MW03_0.2, BQ_MW06_2.0,	28-NOV-2013	07-DEC-2013	12-DEC-2013	✓	10-DEC-2013	12-DEC-2013	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080) BQ_MW05_2.0,	BQ_MW07_2.0	28-NOV-2013	---	12-DEC-2013	----	09-DEC-2013	12-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) BB_MW04_9.5, BB_MW03_5.9, BO_MW04_0.5, BQ_MW01_0.1	BB_MW03_3.6, BO_MW03_0.2, BQ_MW06_2.0,	28-NOV-2013	07-DEC-2013	12-DEC-2013	✓	10-DEC-2013	12-DEC-2013	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Electrical Conductivity (Saturated Paste)	EA032	1	9	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	2	10	20.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Organic Matter	EP004	2	15	13.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	12	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	39	10.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	6	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Electrical Conductivity (Saturated Paste)	EA032	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Organic Matter	EP004	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Electrical Conductivity (Saturated Paste)	EA032	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Organic Matter	EP004	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Organic Matter	EP004	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Electrical Conductivity (Saturated Paste)	EA032	SOIL	USEPA 600/2 - 78 - 054 - conductivity determined on a saturated paste.
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis (Sieving)	EA150	SOIL	Particle Size Analysis by Sieving according to AS1289.3.6.1 - 2009
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Organic Matter	EP004	SOIL	AS1289.4.1.1 - 1997., Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM (2013) Schedule B(3) (Method 105)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Organic Matter	EP004-PR	SOIL	AS1289.4.1.1 - 1997., Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM (2013) Schedule B(3) (Method 105)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: SOIL

Method	Extraction / Preparation			Analysis			
	Container / Client Sample ID(s)	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002 : pH (Soils)							
Soil Glass Jar - Unpreserved							
BB_MW04_9.5, BB_MW03_5.9, BO_MW04_0.5, BQ_MW05_2.0, BQ_MW01_0.1	BB_MW03_3.6, BO_MW03_0.2, BQ_MW06_2.0, BQ_MW07_2.0	09-DEC-2013	05-DEC-2013	4	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved							
BQ_MW05_2.0,	BQ_MW07_2.0	----	----	----	09-DEC-2013	05-DEC-2013	4
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved							
BQ_MW05_2.0,	BQ_MW07_2.0	----	----	----	09-DEC-2013	05-DEC-2013	4
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved							
BQ_MW05_2.0,	BQ_MW07_2.0	----	----	----	09-DEC-2013	05-DEC-2013	4
EP074D: Fumigants							
Soil Glass Jar - Unpreserved							
BQ_MW05_2.0,	BQ_MW07_2.0	----	----	----	09-DEC-2013	05-DEC-2013	4
EP074E: Halogenated Aliphatic Compounds							



Matrix: **SOIL**

Method Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP074E: Halogenated Aliphatic Compounds - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved BQ_MW05_2.0, BQ_MW07_2.0	----	----	----	09-DEC-2013	05-DEC-2013	4
EP074F: Halogenated Aromatic Compounds						
Soil Glass Jar - Unpreserved BQ_MW05_2.0, BQ_MW07_2.0	----	----	----	09-DEC-2013	05-DEC-2013	4
EP074G: Trihalomethanes						
Soil Glass Jar - Unpreserved BQ_MW05_2.0, BQ_MW07_2.0	----	----	----	09-DEC-2013	05-DEC-2013	4
EP074H: Naphthalene						
Soil Glass Jar - Unpreserved BQ_MW05_2.0, BQ_MW07_2.0	----	----	----	09-DEC-2013	05-DEC-2013	4

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.



CHAIN OF CUSTODY
ALS Laboratory
please tick

CLIENT: DREXEL EDWIN (NAGLEN)
OFFICE: SUNNY
PROJECT: Project Symphory
PROJECT NUMBER: 0224193
SAMPLER: AC

TURNAROUND REQUIREMENTS:
Standard TAT may be longer for some tests e.g. UTM, Trace Elements
 Standard TAT (List due date)
 Non Standard or urgent TAT (List due date)
ALS QUOTE NO.: SYFM113
SITE: BAYSWATER LIODELL

FOR LABORATORY USE ONLY (Circle)
Custody Seal Intact? Yes No
Free Ice / frozen for below present upon receipt? Yes No
Random Sample Temperature on Receipt: C F

RECEIVED BY: Frank ACS
DATE/TIME: 4-12-13 19:00

RELINQUISHED BY:
DATE/TIME:

RECEIVED BY:
DATE/TIME:

RELINQUISHED BY:
DATE/TIME:

COC emailed to ALS? (YES / NO)
Email Reports to (will default to PM if no other addresses are listed): Symphony.mange@edwin.com
Email Invoice to (will default to PM if no other addresses are listed):

ALS USE	SAMPLE DETAILS		CONTAINER INFORMATION		ANALYSIS REQUIRED (Including SURTES NB. Some Codes must be listed to assist with price) Where Metals are required, specify Total (unfiltered) or Dissolved (filtered unless specified)										Additional Information		
	MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	(refer to TOTAL CONTAINERS)	9-2 Metals (As, Ba, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B, Mo, Ti, Se)	E:24 TRHCs (C40) BTEXN, PAH, Phenols	VOC Target Scan	PCB	pH (1:5)	Exchangeable Cations (ED07)	PFOS/PFOA	Asbestos (absence/presence)		Particle Sizing to 75µm (Sieve)	Organic Matter (Total Carbon, TOC, TOC-Plus)
1	BA-MN03-1175	28-11-13	SOIL	7312	1	X	X	X	X	X							
2	BA-MN03-2.5	"	"	"	"	X	X	X	X	X							VOID
3	BA-MN01-1.75	"	"	"	"	X	X	X	X	X							VOID
4	BA-MN01-2.5	"	"	"	"	X	X	X	X	X							VOID
5	BA-9805-1.55	"	"	"	"	X	X	X	X	X							VOID
6	TRIP BRANK																
7	TSC																
9	BO1-28113_01	28-11-13		EXTRA													
10	BA-807-2.8	28-11-13															

Environmental Division
Sycney
Work Order
ES1326693



Telephone : +61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/CO Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass
V = VOA Vial HCl Preserved; VB = VOA Vial Sealing Bechthold Preserved; VS = VOA Vial Sealing Bechthold Preserved; AV = Airtight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic
Z = Zinc Asbestos Preserved Bottle; E = EDTA Preserved Bottle; ST = Stable Salt; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: ES1326693		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact Address	: MR JOSEPH FERRING GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Contact Address	: Barbara Hanna 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	Page	: 1 of 3
Order number	: 0224193	Quote number	: ES2013ENVRES0369 (SY/794/13)
C-O-C number	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER		
Sampler	: HC		

Dates

Date Samples Received	: 04-DEC-2013	Issue Date	: 06-DEC-2013 23:02
Client Requested Due Date	: 11-DEC-2013	Scheduled Reporting Date	: 11-DEC-2013

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 3.5°C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 10
Security Seal	: Intact.	No. of samples analysed	: 6

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample R01_281113_01 and BH_5B07_2.8 received extra and placed on hold, Please confirm**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA010 (solids): Electrical Conductivity (1:5) Electrical Conductivity (1:5)	SOIL - ED007 CEC / Exchangeable Cations (ED007) -All	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - EP080 BTEXN	SOIL - S-18 TRH(C6-C9)/BTEXN	SOIL - S-24 TRH/BTEXN/PAH + Phenols	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1326693-001	28-NOV-2013 15:00	BA_MW03_1.75		✓	✓	✓			✓	
ES1326693-002	28-NOV-2013 15:00	BA_MW0_1.75		✓	✓	✓			✓	
ES1326693-003	28-NOV-2013 15:00	BH_SB05_1.55		✓	✓					✓
ES1326693-004	28-NOV-2013 15:00	TRIP SPIKE					✓			
ES1326693-005	28-NOV-2013 15:00	TRIP BLANK						✓		
ES1326693-006	28-NOV-2013 15:00	TSC					✓			
ES1326693-007	28-NOV-2013 15:00	BA_MW03_2.5	✓							
ES1326693-008	28-NOV-2013 15:00	BA_MW01_2.5	✓							
ES1326693-010	28-NOV-2013 15:00	BH_SB07_2.8	✓							

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) WATER No analysis requested
ES1326693-009	28-NOV-2013 15:00	R01_281113_01	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA)	Email	joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	joseph.ferring@erm.com
- Chain of Custody (CoC) (COC)	Email	joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	joseph.ferring@erm.com
- EDI Format - XTab (XTAB)	Email	joseph.ferring@erm.com

SYMPHONY ERARING

- *AU Certificate of Analysis - NATA (COA)	Email	Symphony.Eraring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Symphony.Eraring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Symphony.Eraring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Symphony.Eraring@erm.com
- Chain of Custody (CoC) (COC)	Email	Symphony.Eraring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	Symphony.Eraring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	Symphony.Eraring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	Symphony.Eraring@erm.com
- EDI Format - XTab (XTAB)	Email	Symphony.Eraring@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
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CERTIFICATE OF ANALYSIS

Work Order	: ES1326693	Page	: 1 of 8
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0224193	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 12-DEC-2013
Sampler	: HC	No. of samples received	: 10
Site	: BAYSWATER	No. of samples analysed	: 6
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP080: The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.**



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BA_MW03_1.75	BA_MW0_1.75	BH_SB05_1.55	TRIP SPIKE	TRIP BLANK
				28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326693-001	ES1326693-002	ES1326693-003	ES1326693-004	ES1326693-005
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	155	239	2620	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	13.4	11.1	14.1	----	20.6
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	1.4	7.2	57.0	----	----
Exchangeable Magnesium	----	0.1	meq/100g	5.7	9.4	2.9	----	----
Exchangeable Potassium	----	0.1	meq/100g	0.3	0.2	0.1	----	----
Exchangeable Sodium	----	0.1	meq/100g	2.0	2.3	0.4	----	----
Cation Exchange Capacity	----	0.1	meq/100g	9.4	19.2	60.4	----	----
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	<0.1	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	6	75	----	----	----
Barium	7440-39-3	10	mg/kg	110	40	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	<1	----	----	----
Boron	7440-42-8	50	mg/kg	<50	<50	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	1	----	----	----
Chromium	7440-47-3	2	mg/kg	10	23	----	----	----
Cobalt	7440-48-4	2	mg/kg	<2	7	----	----	----
Copper	7440-50-8	5	mg/kg	14	30	----	----	----
Lead	7439-92-1	5	mg/kg	25	13	----	----	----
Manganese	7439-96-5	5	mg/kg	14	148	----	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	<2	----	----	----
Nickel	7440-02-0	2	mg/kg	3	22	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	----	----	----
Vanadium	7440-62-2	5	mg/kg	9	58	----	----	----
Zinc	7440-66-6	5	mg/kg	52	86	----	----	----
Thallium	7440-28-0	5	mg/kg	<5	<5	----	----	----
Arsenic	7440-38-2	5	mg/kg	----	----	19	----	----
Cadmium	7440-43-9	1	mg/kg	----	----	2	----	----
Chromium	7440-47-3	2	mg/kg	----	----	24	----	----
Copper	7440-50-8	5	mg/kg	----	----	39	----	----
Lead	7439-92-1	5	mg/kg	----	----	22	----	----
Nickel	7440-02-0	2	mg/kg	----	----	28	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BA_MW03_1.75	BA_MW0_1.75	BH_SB05_1.55	TRIP SPIKE	TRIP BLANK
				28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326693-001	ES1326693-002	ES1326693-003	ES1326693-004	ES1326693-005
EG005T: Total Metals by ICP-AES - Continued								
Zinc	7440-66-6	5	mg/kg	----	----	89	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	----	<0.1	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BA_MW03_1.75	BA_MW0_1.75	BH_SB05_1.55	TRIP SPIKE	TRIP BLANK
				28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326693-001	ES1326693-002	ES1326693-003	ES1326693-004	ES1326693-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	0.6	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	15.4	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	1.8	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	9.2	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	3.7	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	12.9	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	30.7	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	107	108	108	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	106	114	108	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	80.6	87.0	81.6	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	108	116	112	----	----
Anthracene-d10	1719-06-8	0.1	%	90.2	97.1	92.5	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	82.2	89.1	84.8	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BA_MW03_1.75	BA_MW0_1.75	BH_SB05_1.55	TRIP SPIKE	TRIP BLANK
				28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326693-001	ES1326693-002	ES1326693-003	ES1326693-004	ES1326693-005
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	102	103	103	98.0	90.2
Toluene-D8	2037-26-5	0.1	%	106	96.8	104	91.6	96.6
4-Bromofluorobenzene	460-00-4	0.1	%	106	98.9	98.9	91.4	94.2



Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Client sample ID

				TSC	----	----	----	----
				28-NOV-2013 15:00	----	----	----	----
				ES1326693-006	----	----	----	----
Compound	CAS Number	LOR	Unit					
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	0.8	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	16.9	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	2.0	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	10.1	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	4.0	----	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	14.1	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	33.8	----	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	117	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	112	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	110	----	----	----	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM): Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM): PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

QUALITY CONTROL REPORT

Work Order	: ES1326693	Page	: 1 of 12
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 12-DEC-2013
Sampler	: HC	No. of samples received	: 10
Order number	: 0224193	No. of samples analysed	: 6
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC



NATA Accredited
Laboratory 825

Accredited for
compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA010: Conductivity (QC Lot: 3202720)									
ES1326045-004	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	628	603	4.1	0% - 20%
ES1326715-004	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	34	28	16.2	0% - 20%
EA055: Moisture Content (QC Lot: 3201226)									
ES1326688-013	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	5.8	5.7	0.0	No Limit
ES1326692-004	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	19.7	19.0	3.3	0% - 50%
EA055: Moisture Content (QC Lot: 3201227)									
ES1326693-005	TRIP BLANK	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	20.6	20.4	1.0	0% - 20%
ES1326789-007	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	12.4	11.2	10.1	0% - 50%
ED007: Exchangeable Cations (QC Lot: 3200405)									
ES1326692-001	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	11.9	10.9	8.5	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	3.0	3.5	14.7	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.5	0.6	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.1	0.2	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	15.5	15.1	2.6	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
ES1326693-003	BH_SB05_1.55	ED007: Exchangeable Calcium	----	0.1	meq/100g	57.0	55.7	2.3	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	2.9	2.9	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.1	0.1	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.4	0.4	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	60.4	59.0	2.4	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 3204429)									
ES1326693-003	BH_SB05_1.55	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	2	2	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	30	30	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	24	25	4.6	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	13	7	55.4	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	28	26	4.6	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	19	20	5.4	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	39	34	13.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	22	21	4.8	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	304	272	11.2	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	45	43	3.3	No Limit



Sub-Matrix: SOIL

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005T: Total Metals by ICP-AES (QC Lot: 3204429) - continued									
ES1326693-003	BH_SB05_1.55	EG005T: Zinc	7440-66-6	5	mg/kg	89	71	22.5	0% - 50%
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
ES1326693-002	BA_MW0_1.75	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	1	1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	40	90	73.8	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	23	22	6.0	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	7	7	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	3	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	22	22	0.0	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	75	71	5.4	0% - 50%
		EG005T: Copper	7440-50-8	5	mg/kg	30	29	5.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	13	36	91.6	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	148	149	1.1	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	58	58	0.0	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	86	89	4.5	0% - 50%
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3204430)									
ES1326693-003	BH_SB05_1.55	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EW1303532-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.2	0.1	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3201612)									
ES1326692-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		ES1326692-009	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5
EP075(SIM): 2-Chlorophenol	95-57-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2.4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3201612) - continued									
ES1326692-009	Anonymous	EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3201612)									
ES1326692-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	1.8	1.4	21.2	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	0.7	0.5	23.5	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	2.5	1.9	27.3	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1326692-009	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3201612) - continued									
ES1326692-009	Anonymous	EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3199540)									
ES1326323-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1326692-004	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3201611)									
ES1326692-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1326692-009	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3199540)									
ES1326323-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1326692-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3201611)									
ES1326692-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1326692-009	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 3199540)									
ES1326323-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1326692-004	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

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 Work Order : ES1326693
 Client : ENVIRO RESOURCES MANAGEMENT
 Project : Project Symphony



Sub-Matrix: **SOIL**

Laboratory Duplicate (DUP) Report

<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>LOR</i>	<i>Unit</i>	<i>Original Result</i>	<i>Duplicate Result</i>	<i>RPD (%)</i>	<i>Recovery Limits (%)</i>
EP080: BTEXN (QC Lot: 3199540) - continued									
ES1326692-004	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EA010: Conductivity (QCLot: 3202720)									
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	101	70	130	
ED007: Exchangeable Cations (QCLot: 3200405)									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3204429)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	118	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	117	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	124	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	116	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	116	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	113	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	119	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	110	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	125	85	127	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	126	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	122	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	108	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	121	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	110	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	123	70	130	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3204430)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	83.1	66	112	
EP075(SIM)A: Phenolic Compounds (QCLot: 3201612)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	107	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	103	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	102	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	106	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	82.2	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	90.1	69	117	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 3201612) - continued									
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	90.8	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	94.6	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	88.7	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	84.3	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	87.8	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	26.1	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3201612)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	111	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	93.3	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	97.5	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	98.2	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	100	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	98.4	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	98.5	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	99.7	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	110	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	112	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	108	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	105	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	103	76	122	
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	111	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	111	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	98.0	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199540)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	107	68.4	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3201611)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	92.8	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	106	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	95.0	64	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199540)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	104	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3201611)									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	100	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	102	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	81.4	63	131	
EP080: BTEXN (QCLot: 3199540)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	88.9	62	116	



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
EP080: BTEXN (QCLot: 3199540) - continued								
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	93.1	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	92.0	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	93.8	60	120
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	98.0	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	89.4	62	138

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
EG005T: Total Metals by ICP-AES (QCLot: 3204429)							
ES1326693-003	BH_SB05_1.55	EG005T: Arsenic	7440-38-2	50 mg/kg	120	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	112	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	109	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	123	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	111	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	113	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	89.4	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3204430)							
ES1326693-003	BH_SB05_1.55	EG035T: Mercury	7439-97-6	5 mg/kg	95.9	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3201612)							
ES1326692-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	116	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	116	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	101	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	106	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	56.3	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3201612)							
ES1326692-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	119	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	108	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199540)							
ES1326323-001	Anonymous	EP080: C6 - C9 Fraction	---	32.5 mg/kg	116	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3201611)							



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3201611) - continued								
ES1326692-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	79.1	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	79.5	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	69.3	52	132	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199540)								
ES1326323-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	111	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3201611)								
ES1326692-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	99.0	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	73.2	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	53.2	52	132	
EP080: BTEXN (QCLot: 3199540)								
ES1326323-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	102	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	87.7	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	82.4	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	95.2	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	88.0	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	72.8	70	130			

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199540)											
ES1326323-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	116	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199540)											
ES1326323-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	111	----	70	130	----	----	
EP080: BTEXN (QCLot: 3199540)											
ES1326323-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	102	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	87.7	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	82.4	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	95.2	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	88.0	----	70	130	----	----	
EP080: Naphthalene	91-20-3	2.5 mg/kg	72.8	----	70	130	----	----			



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3201611)										
ES1326692-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	79.1	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	79.5	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	69.3	----	52	132	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3201611)										
ES1326692-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	99.0	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	73.2	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	53.2	----	52	132	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3201612)										
ES1326692-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	116	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	116	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	101	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	106	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	56.3	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3201612)										
ES1326692-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	119	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	108	----	70	130	----	----
EG005T: Total Metals by ICP-AES (QCLot: 3204429)										
ES1326693-003	BH_SB05_1.55	EG005T: Arsenic	7440-38-2	50 mg/kg	120	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	112	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	109	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	123	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	111	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	113	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	89.4	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3204430)										
ES1326693-003	BH_SB05_1.55	EG035T: Mercury	7439-97-6	5 mg/kg	95.9	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326693	Page	: 1 of 7
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 12-DEC-2013
Sampler	: HC	No. of samples received	: 10
Order number	: 0224193	No. of samples analysed	: 6
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA010: Conductivity								
Soil Glass Jar - Unpreserved (EA010) BA_MW03_1.75, BH_SB05_1.55	BA_MW0_1.75,	28-NOV-2013	10-DEC-2013	05-DEC-2013	*	10-DEC-2013	07-JAN-2014	✓
EA055: Moisture Content								
Soil Glass Jar - Unpreserved (EA055-103) BA_MW03_1.75, BH_SB05_1.55,	BA_MW0_1.75, TRIP BLANK	28-NOV-2013	----	----	----	09-DEC-2013	12-DEC-2013	✓
ED007: Exchangeable Cations								
Soil Glass Jar - Unpreserved (ED007) BA_MW03_1.75, BH_SB05_1.55	BA_MW0_1.75,	28-NOV-2013	09-DEC-2013	26-DEC-2013	✓	10-DEC-2013	26-DEC-2013	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T) BA_MW03_1.75, BH_SB05_1.55	BA_MW0_1.75,	28-NOV-2013	10-DEC-2013	27-MAY-2014	✓	11-DEC-2013	27-MAY-2014	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T) BH_SB05_1.55		28-NOV-2013	10-DEC-2013	26-DEC-2013	✓	11-DEC-2013	26-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Soil Glass Jar - Unpreserved (EP071) BA_MW03_1.75, BH_SB05_1.55	BA_MW0_1.75,	28-NOV-2013	11-DEC-2013	12-DEC-2013	✓	11-DEC-2013	20-JAN-2014	✓
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM)) BA_MW03_1.75, BH_SB05_1.55	BA_MW0_1.75,	28-NOV-2013	11-DEC-2013	12-DEC-2013	✓	11-DEC-2013	20-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) BA_MW03_1.75, BH_SB05_1.55	BA_MW0_1.75,	28-NOV-2013	11-DEC-2013	12-DEC-2013	✓	11-DEC-2013	20-JAN-2014	✓



Matrix: SOIL

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) BA_MW03_1.75, BH_SB05_1.55, TRIP BLANK,	BA_MW0_1.75, TRIP SPIKE, TSC	28-NOV-2013	07-DEC-2013	12-DEC-2013	✓	10-DEC-2013	12-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Soil Glass Jar - Unpreserved (EP080) BA_MW03_1.75, BH_SB05_1.55,	BA_MW0_1.75, TRIP BLANK	28-NOV-2013	07-DEC-2013	12-DEC-2013	✓	10-DEC-2013	12-DEC-2013	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Electrical Conductivity (1:5)	EA010	2	12	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	2	10	20.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	12	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	13	15.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Electrical Conductivity (1:5)	EA010	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Electrical Conductivity (1:5)	EA010	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Electrical Conductivity (1:5)	EA010	SOIL	(APHA 21st ed., 2510) Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 104)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH ₄ Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.





Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: SOIL

Method	Extraction / Preparation			Analysis			
	Container / Client Sample ID(s)	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA010: Conductivity							
Soil Glass Jar - Unpreserved							
BA_MW03_1.75, BH_SB05_1.55	BA_MW0_1.75,	10-DEC-2013	05-DEC-2013	5	----	----	----

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

6694



CHAIN OF CUSTODY

ALS Laboratory

Please tick →

Standard TAT (List due date):

Non-Standard or urgent TAT (List due date):

Ultra Trace Organics

ALS QUOTE NO.: SY1794/13

CLIENT: ERM

OFFICE: Sydney

PROJECT: Symphony Bayswater

ORDER NUMBER: 0224163

PROJECT MANAGER: JOSEPH FERRING

SAMPLER: STEPHEN MULLIGAN

COC emailed to ALS? (YES / NO)

EDD FORMAT (or default): SYMPHONY.MACGEN@ERM.COM

RELINQUISHED BY: Stephen Mulligan Frank AS

DATE/TIME: 29/11/13

RECEIVED BY:

DATE/TIME:

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact? Yes No

Free ice / frozen, ice crystals present upon receipt? Yes No

Random Sample Temperature on Receipt: °C

Other comment:

ANALYSIS REQUIRED INCLUDING SUITES (NB, Suite Codes must be listed to attract suite price)

Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).

CONCENTRATIONS

TYPE & PRESERVATIVE codes below

MATRIX

DATE / TIME

SAMPLE ID

LAB ID

1 BE_MW02_20

29/11/13

Soil

1 x Jar

1

8 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)

X TRH (6-40)

X PHENOLS

Environmental Division

Sydney

Work Order

ES1326694



Telephone: +61-2-8784 8555

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved CRC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide/Cd Preserved Plastic; AG = Amber Glass Unpreserved Plastic; AP = Airtight Unpreserved Plastic

V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airtight Unpreserved Vial SG = Sulfuric Preserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Plastic; F = Formaldehyde Preserved Glass;

Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

SAMPLE RECEIPT NOTIFICATION (SRN)**Comprehensive Report**

Work Order : **ES1326694**

Client : **ENVIRO RESOURCES MANAGEMENT** **Laboratory** : Environmental Division Sydney

Contact : MR JOSEPH FERRING **Contact** : Barbara Hanna
Address : GROUND FLOOR **Address** : 277-289 Woodpark Road Smithfield
33 SAUNDERS STREET, PYRMONT NSW Australia 2164
NSW 2009
LOCKED BAG 24
BROADWAY NSW, AUSTRALIA 2007

E-mail : joseph.ferring@erm.com **E-mail** : Barbara.Hanna@alsglobal.com
Telephone : +61 02 8584 8888 **Telephone** : +61 2 8784 8555
Facsimile : +61 02 8584 8800 **Facsimile** : +61 2 8784 8555

Project : Project Symphony **Page** : 1 of 2

Order number : 0224193

C-O-C number : ---- **Quote number** : ES2013ENVRES0369 (SY/794/13)

Site : ----

Sampler : SM **QC Level** : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 04-DEC-2013 **Issue Date** : 06-DEC-2013 16:33
Client Requested Due Date : 10-DEC-2013 **Scheduled Reporting Date** : **10-DEC-2013**

Delivery Details

Mode of Delivery : Carrier **Temperature** : 3.5°C - Ice present
No. of coolers/boxes : 1 HARD **No. of samples received** : 1
Security Seal : Intact. **No. of samples analysed** : 1

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-27 TRH/BTEX/NIPAH/Phenols/8Metals
ES1326694-001	29-NOV-2013 15:00	BE_MW02_2.0	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA)	Email	joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	joseph.ferring@erm.com
- Chain of Custody (CoC) (COC)	Email	joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	joseph.ferring@erm.com
- EDI Format - XTab (XTAB)	Email	joseph.ferring@erm.com

SYMPHONY ERARING

- *AU Certificate of Analysis - NATA (COA)	Email	Symphony.Eraring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Symphony.Eraring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Symphony.Eraring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Symphony.Eraring@erm.com
- Chain of Custody (CoC) (COC)	Email	Symphony.Eraring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	Symphony.Eraring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	Symphony.Eraring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	Symphony.Eraring@erm.com
- EDI Format - XTab (XTAB)	Email	Symphony.Eraring@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
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CERTIFICATE OF ANALYSIS

Work Order : ES1326694 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : Project Symphony Order number : 0224193 C-O-C number : ---- Sampler : SM Site : ---- Quote number : SY/794/13	Page : 1 of 6 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 04-DEC-2013 Issue Date : 11-DEC-2013 No. of samples received : 1 No. of samples analysed : 1
--	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

BE_MW02_2.0

Client sampling date / time

29-NOV-2013 15:00

Compound	CAS Number	LOR	Unit	ES1326694-001	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

EA055: Moisture Content

Moisture Content (dried @ 103°C)	---	1.0	%	16.2	---	---	---	---
----------------------------------	-----	-----	---	------	-----	-----	-----	-----

EG005T: Total Metals by ICP-AES

Arsenic	7440-38-2	5	mg/kg	<5	---	---	---	---
Cadmium	7440-43-9	1	mg/kg	<1	---	---	---	---
Chromium	7440-47-3	2	mg/kg	15	---	---	---	---
Copper	7440-50-8	5	mg/kg	14	---	---	---	---
Lead	7439-92-1	5	mg/kg	6	---	---	---	---
Nickel	7440-02-0	2	mg/kg	8	---	---	---	---
Zinc	7440-66-6	5	mg/kg	48	---	---	---	---

EG035T: Total Recoverable Mercury by FIMS

Mercury	7439-97-6	0.1	mg/kg	0.1	---	---	---	---
---------	-----------	-----	-------	-----	-----	-----	-----	-----

EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	0.5	mg/kg	<0.5	---	---	---	---
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	---	---	---	---
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	---	---	---	---
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	---	---	---	---
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	---	---	---	---
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	---	---	---	---
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	---	---	---	---
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	---	---	---	---
Pentachlorophenol	87-86-5	2	mg/kg	<2	---	---	---	---

EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	0.5	mg/kg	<0.5	---	---	---	---
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	---	---	---	---
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	---	---	---	---
Fluorene	86-73-7	0.5	mg/kg	<0.5	---	---	---	---
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	---	---	---	---
Anthracene	120-12-7	0.5	mg/kg	<0.5	---	---	---	---
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	---	---	---	---
Pyrene	129-00-0	0.5	mg/kg	<0.5	---	---	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

BE_MW02_2.0

Client sampling date / time

29-NOV-2013 15:00

Compound	CAS Number	LOR	Unit	ES1326694-001				
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	----	----	----
^ Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----



Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Client sample ID

BE_MW02_2.0

Client sampling date / time

29-NOV-2013 15:00

Compound	CAS Number	LOR	Unit	ES1326694-001	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	84.2	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	89.4	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%	73.1	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	113	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	90.8	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	113	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	84.8	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	115	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	126	----	----	----	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM): Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM): PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

QUALITY CONTROL REPORT

Work Order	: ES1326694	Page	: 1 of 10
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 11-DEC-2013
Sampler	: SM	No. of samples received	: 1
Order number	: 0224193	No. of samples analysed	: 1
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited
Laboratory 825

Accredited for
compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC



Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA055: Moisture Content (QC Lot: 3201227)									
ES1326693-005	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	20.6	20.4	1.0	0% - 20%
ES1326789-007	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	12.4	11.2	10.1	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 3201220)									
ES1326689-003	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	6	27.9	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	13	16	21.6	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	10	28.8	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	7	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	9	14	43.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	36	51	35.0	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3201221)									
ES1326689-003	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3197951)									
ES1326596-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		ES1326685-006	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5
EP075(SIM): 2-Chlorophenol	95-57-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2.4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2.4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2.6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			1	mg/kg	<1	<1	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3197951) - continued									
ES1326685-006	Anonymous	EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3197951)									
ES1326596-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1326685-006	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3197950)										
ES1326596-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
ES1326685-006	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3200848)										
ES1326689-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3197950)										
ES1326596-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1326685-006	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3200848)										
ES1326689-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
EP080: BTEXN (QC Lot: 3200848)										
ES1326689-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EG005T: Total Metals by ICP-AES (QCLot: 3201220)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	112	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	104	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	110	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	111	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	107	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	114	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	109	81	133	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3201221)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	93.9	66	112	
EP075(SIM)A: Phenolic Compounds (QCLot: 3197951)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	82.5	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	80.1	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	79.0	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	78.0	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	102	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	76.9	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	86.7	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	88.5	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	82.3	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	73.6	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	88.5	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	10.9	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3197951)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	84.5	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	89.2	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	90.7	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	88.1	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	90.0	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	88.6	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	91.6	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	91.5	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	92.8	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	93.5	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	113	70	118	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3197951) - continued									
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	105	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	79.8	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	79.3	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	75.1	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	80.8	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3197950)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	99.7	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	89.0	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	94.7	64	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3200848)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	96.8	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3197950)									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	98.8	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	89.9	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	75.1	63	131	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3200848)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	96.1	68.4	128	
EP080: BTEXN (QCLot: 3200848)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	80.6	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	104	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	98.6	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	99.0	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	94.9	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	74.0	62	138	

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	High
EG005T: Total Metals by ICP-AES (QCLot: 3201220)								
ES1326689-003	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	116	70	130	
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	70	130	
		EG005T: Chromium	7440-47-3	50 mg/kg	107	70	130	



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EG005T: Total Metals by ICP-AES (QCLot: 3201220) - continued								
ES1326689-003	Anonymous	EG005T: Copper	7440-50-8	125 mg/kg	110	70	130	
		EG005T: Lead	7439-92-1	125 mg/kg	108	70	130	
		EG005T: Nickel	7440-02-0	50 mg/kg	107	70	130	
		EG005T: Zinc	7440-66-6	125 mg/kg	106	70	130	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3201221)								
ES1326689-003	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	107	70	130	
EP075(SIM)A: Phenolic Compounds (QCLot: 3197951)								
ES1326596-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	79.3	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	79.1	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	85.3	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	80.0	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	49.8	20	130	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3197951)								
ES1326596-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	86.7	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	94.9	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3197950)								
ES1326596-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	80.3	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	81.7	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	73.1	52	132	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3200848)								
ES1326689-002	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	85.6	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3197950)								
ES1326596-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	102	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	76.2	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	58.6	52	132	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3200848)								
ES1326689-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	84.0	70	130	
EP080: BTEXN (QCLot: 3200848)								
ES1326689-002	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	73.0	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	88.5	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	89.6	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	85.5	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	86.2	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	71.3	70	130			



Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3197950)										
ES1326596-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	80.3	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	81.7	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	73.1	----	52	132	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3197950)										
ES1326596-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	102	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	76.2	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	58.6	----	52	132	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3197951)										
ES1326596-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	79.3	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	79.1	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	85.3	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	80.0	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	49.8	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3197951)										
ES1326596-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	86.7	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	94.9	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3200848)										
ES1326689-002	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	85.6	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3200848)										
ES1326689-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	84.0	----	70	130	----	----
EP080: BTEXN (QCLot: 3200848)										
ES1326689-002	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	73.0	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	88.5	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	89.6	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	85.5	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	86.2	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	71.3	----	70	130	----	----
EG005T: Total Metals by ICP-AES (QCLot: 3201220)										
ES1326689-003	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	116	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	107	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	110	----	70	130	----	----



Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EG005T: Total Metals by ICP-AES (QCLot: 3201220) - continued										
ES1326689-003	Anonymous	EG005T: Lead	7439-92-1	125 mg/kg	108	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	107	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	106	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3201221)										
ES1326689-003	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	107	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326694	Page	: 1 of 5
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 11-DEC-2013
Sampler	: SM	No. of samples received	: 1
Order number	: 0224193	No. of samples analysed	: 1
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103) BE_MW02_2.0	29-NOV-2013	----	----	----	09-DEC-2013	13-DEC-2013	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) BE_MW02_2.0	29-NOV-2013	09-DEC-2013	28-MAY-2014	✓	10-DEC-2013	28-MAY-2014	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) BE_MW02_2.0	29-NOV-2013	09-DEC-2013	27-DEC-2013	✓	10-DEC-2013	27-DEC-2013	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) BE_MW02_2.0	29-NOV-2013	09-DEC-2013	13-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) BE_MW02_2.0	29-NOV-2013	09-DEC-2013	13-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) BE_MW02_2.0	29-NOV-2013	09-DEC-2013	13-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) BE_MW02_2.0	29-NOV-2013	09-DEC-2013	13-DEC-2013	✓	09-DEC-2013	13-DEC-2013	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) BE_MW02_2.0	29-NOV-2013	09-DEC-2013	13-DEC-2013	✓	09-DEC-2013	13-DEC-2013	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	2	50.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	3	33.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	5	20.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-

16/12

ALS
CHAIN OF CUSTODY
 ALS Laboratory
 (Please tick ✓)
 100 Pitt Street, Sydney NSW 2000
 Ph: 02 9251 9772, Fax: 02 9251 9773
 24 Hour Helpline: 02 9251 9774
 24 Hour Fax Line: 02 9251 9775
 24 Hour Email: als@als.com.au
 24 Hour Web: www.als.com.au
 24 Hour SMS: 0800 00 00 00

CLIENT: ERM
OFFICE: DUNSEY
PROJECT: Project Symphony
ORDER NUMBER: 0824193
PROJECT MANAGER: JF
SAMPLER: HC, CP
CONTACT PH:
SAMPLER MOBILE:
EDD FORMAT (or default): Sydney - m.s.g. @ e.r.m. com.
CDC emailed to ALS? (YES / NO):
Email Invoices to (will default to PM if no other addresses are listed):
Standard TAT (List due date):
 Standard TAT (List due date)
 Non Standard or urgent TAT (List due date)
ALS QUOTE NO.: SY794713
SITE: BAYSWATER LIDDELL
TURNAROUND REQUIREMENTS:
 (Standard TAT may be longer for some tests e.g. Ultra Trace Elements)
FOR LABORATORY USE ONLY (Circle)
 Custody Seal Intact? Yes No N/A
 Free Ion / Hexan Ion Bids present upon receipt? Yes No N/A
 Random Sample Temperature on Receipt: °C
 Other comments:
RECEIVED BY:
DATE:
RELINQUISHED BY:
DATE/TIME:

Work Order
Environmental Division
Sydney
ES1326695
 Telephone : + 61-2-8784 8555

ANALYSIS REQUIRED (including SUITES (N), Suite Codes must be listed to affect suite(s))
 Where Stable are required, specify Total (unfiltered) or Dissolved (filtered) (both filtered unless specified).
 (Total Organic Carbon (TOC) and Organic Matter plus 7µm (Sieve) Particle Size to (absence/presence) Asbestos)

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (as per below)	CONTAINER INFORMATION (refer to TOTAL CONTAINERS)	5-2 Metals (As, Ba, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Bi, Br, Ca, Co, Cr, Cu, Fe, Mn, Ni, Pb, V, Zn, B, Mo, Tl, Se)	S-24 TRACE (Cd, Pb, Hg, Cr, Ni, Mn, Fe, Cu, Zn, Ni, Pb, Cr, Ni, Hg)	Phenols (C6H5OH, PAH)	VOC Target Scan	pH (1:5) / ORP	EC	TOC	Organic Matter plus 7µm (Sieve) Particle Size to (absence/presence) Asbestos	Total Organic Carbon (TOC)	Comments (Initials, Date, etc)
1	60-mm02-0.2	2-12-13	soil	DRG + PAR 2	3	X	X	X	X	X	X	X	X	X	X	
2	60-mm02-1.5			DRG + PAR 2	1	X	X	X	X	X	X	X	X	X	X	
3	60-mm02-3.9			DRG + PAR 2	1	X	X	X	X	X	X	X	X	X	X	
4	60-mm03-1.75			DRG + PAR 2	1	X	X	X	X	X	X	X	X	X	X	
5	60-mm05-2.8			DRG + PAR 2	2	X	X	X	X	X	X	X	X	X	X	
6	60-mm05-0.18			DRG + PAR 2	1	X	X	X	X	X	X	X	X	X	X	
7	60-mm05-0.9			DRG + PAR 2	1	X	X	X	X	X	X	X	X	X	X	
8	60-mm05-1.2			DRG + PAR 2	1	X	X	X	X	X	X	X	X	X	X	
9	D01-0212FB-HC			DRG + PAR 2	1	X	X	X	X	X	X	X	X	X	X	
10	60-MN04-2.0			DRG + PAR 2	1	X	X	X	X	X	X	X	X	X	X	
11	60-MN04-3.9			DRG + PAR 2	1	X	X	X	X	X	X	X	X	X	X	
12	60-MN04-1.75			DRG + PAR 2	1	X	X	X	X	X	X	X	X	X	X	
13	60-MN03-4.3			DRG + PAR 2	1	X	X	X	X	X	X	X	X	X	X	
14	60-MN03-3.3			DRG + PAR 2	1	X	X	X	X	X	X	X	X	X	X	

Comments: [Handwritten notes in table cells]

Subco, Forwarded to Split
Lab / Analysis: Newcastle / PSD
Organised By / Date:
Relinquished By / Date:
Comnote / Courier:
WO No:
Attach By PO / Internal Sheet:

CHAIN OF CUSTODY
ALS Laboratory
Please tick →

CLIENT: CUM

OFFICE: Sydney

PROJECT: Project Symphony

ORDER NUMBER: 0004193

PROJECT MANAGER: JF

SAMPLER: HC, GP

COG emailed to ALS? (YES / NO):

Email Reports to (will default to PM if no other addresses are listed): Symphony.mac@cum.com

Email Invoices to (will default to PM if no other addresses are listed):

TURNAROUND REQUIREMENTS: Standard TAT (List due date)
 Standard TAT (List due date)
 New Standard or urgent TAT (List due date)

ALS QUOTE NO: SY79413

SITE: BAYSWATER / LIDDELL

CONTACT PH: _____

SAMPLER MOBILE: _____

EDD FORMAT (or default): _____

FOR LABORATORY USE ONLY (Circle)
 Custody Seal Intact? Yes No N/A
 From low / room temp ticks present upon receipt? Yes No N/A
 Random Sample Temperature on Receipt: _____
 Other comment: _____

RECEIVED BY:
RELINQUISHED BY: Ryan AS
DATE/TIME: 4-12-13 1900

RECEIVED BY:
DATE/TIME:

RECEIVED BY:
DATE/TIME:

LAB ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE CODES (show)	TOTAL CONTAINERS (orig in)	ANALYSIS REQUIRED	ADDITIONAL INFORMATION
16	Trip Spike	soil		1	17 Metals (As, Pb, Zn, Hg), S-2 Metals (As, Cd, Cr, Cu, Ni, Mo, Ti, Se), Ba, Cd, Co, Cr, Cu, Ni, Mn, Ni, Pd, V, Zn, Pb, S-24 TRH(CS-CADJUSTED), PAHs, Phenols, VOC Target Scan, TOH (C, P, BTEX), pH (1:5), Exchangeable cations (ED07)	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
17	R01-020013-GP	2/12/13 w		4		
18	TSC					

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ANALYSIS REQUIRED
 Where Metals are required, specify Total (unfiltered) (boils required) or Dissolved (field filtered) (boils required).

WATER CONTAINER CODES: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved Plastic; AG = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved Plastic; AU = Amber Glass Unpreserved Plastic; V = VOA Vial HCl Preserved; VO = VOA Vial Sodium Dichromate Preserved; VS = VOA Vial Sodium Dichromate Preserved; AV = VOA Vial Sulfuric Preserved; AV = VOA Vial Sulfuric Preserved; Amber Chist; H = HCl preserved Plastic; HG = HCl preserved Spectral bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Strife Bottle; ASB = Plastic Bag for Acid Sulphate Solts; E = Unpreserved Bag.

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1326695	
Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 Project : Project Symphony Order number : 0224193 C-O-C number : ---- Site : BAYWATER Sampler : HC,GP
E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800	E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555
Project : Project Symphony Order number : 0224193 C-O-C number : ---- Site : BAYWATER Sampler : HC,GP	Page : 1 of 4 Quote number : ES2013ENVRES0369 (SY/794/13) QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 04-DEC-2013 Client Requested Due Date : 16-DEC-2013	Issue Date : 06-DEC-2013 18:48 Scheduled Reporting Date : 16-DEC-2013
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Delivery Details

Mode of Delivery : Carrier No. of coolers/boxes : 1 HARD Security Seal : Intact.	Temperature : 3.5°C - Ice present No. of samples received : 18 No. of samples analysed : 13
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General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Particle Sizing analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA010 (solids): Electrical Conductivity (1:5) Electrical Conductivity (1:5)	SOIL - EA150* Particle Size Analysis by Sieving (Default sieves from SOIL - ED007 CEC / Exchangeable Cations (ED007) -All	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - EG035T (solids) Total Mercury by FIMS	SOIL - EP004 (Carbon) Total Organic Carbon (Calc.)
ES1326695-001	02-DEC-2013 15:00	BO_MW02_0.2		✓	✓	✓	✓	✓	✓
ES1326695-002	02-DEC-2013 15:00	BO_MW02_1.5		✓	✓	✓	✓	✓	
ES1326695-003	02-DEC-2013 15:00	BO_MW02_3.9	✓						
ES1326695-004	02-DEC-2013 15:00	BO_MW03_1.75	✓						
ES1326695-005	02-DEC-2013 15:00	BO_MW03_2.8		✓	✓	✓	✓	✓	
ES1326695-006	02-DEC-2013 15:00	BO_MW05_0.15		✓	✓	✓	✓	✓	
ES1326695-007	02-DEC-2013 15:00	BO_MW05_0.9	✓						
ES1326695-008	02-DEC-2013 15:00	BO_MW05_1.2	✓						
ES1326695-009	02-DEC-2013 15:00	D01_021213_HC		✓	✓	✓	✓	✓	
ES1326695-010	02-DEC-2013 15:00	BO_MW04_2.0		✓	✓	✓	✓	✓	
ES1326695-011	02-DEC-2013 15:00	BO_MW04_3.9	✓						
ES1326695-012	02-DEC-2013 15:00	BO_MW04_1.75		✓		✓			
ES1326695-013	02-DEC-2013 15:00	BQ_MW03_4.5		✓	✓	✓	✓	✓	
ES1326695-014	02-DEC-2013 15:00	BQ_MW02_3.8		✓	✓	✓	✓	✓	

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-24 TRH/BTEXN/PAH + Phenols
ES1326695-001	02-DEC-2013 15:00	BO_MW02_0.2		✓
ES1326695-002	02-DEC-2013 15:00	BO_MW02_1.5		✓
ES1326695-005	02-DEC-2013 15:00	BO_MW03_2.8		✓
ES1326695-006	02-DEC-2013 15:00	BO_MW05_0.15		✓
ES1326695-009	02-DEC-2013 15:00	D01_021213_HC		✓
ES1326695-010	02-DEC-2013 15:00	BO_MW04_2.0		✓
ES1326695-013	02-DEC-2013 15:00	BQ_MW03_4.5		✓
ES1326695-014	02-DEC-2013 15:00	BQ_MW02_3.8		✓
ES1326695-015	02-DEC-2013 15:00	TRIP SPIKE	✓	
ES1326695-016	02-DEC-2013 15:00	TRIP BLANK	✓	



ES1326695-018	02-DEC-2013 15:00	TSC	✓	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs SOIL - S-24 TRH/BTEXN/PAH + Phenols
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Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS (including)	WATER - EG035T Total Mercury by FIMS	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1326695-017	02-DEC-2013 15:00	R01_021213_GP	✓	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA)	Email	joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	joseph.ferring@erm.com
- Attachment - Report (SUBCO)	Email	joseph.ferring@erm.com
- Chain of Custody (CoC) (COC)	Email	joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	joseph.ferring@erm.com
- EDI Format - XTab (XTAB)	Email	joseph.ferring@erm.com

SYMPHONY ERARING

- *AU Certificate of Analysis - NATA (COA)	Email	Symphony.Eraring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Symphony.Eraring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Symphony.Eraring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Symphony.Eraring@erm.com
- Attachment - Report (SUBCO)	Email	Symphony.Eraring@erm.com
- Chain of Custody (CoC) (COC)	Email	Symphony.Eraring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	Symphony.Eraring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	Symphony.Eraring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	Symphony.Eraring@erm.com
- EDI Format - XTab (XTAB)	Email	Symphony.Eraring@erm.com

SYMPHONY MACGEN

- *AU Certificate of Analysis - NATA (COA)	Email	symphony.macgen@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	symphony.macgen@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	symphony.macgen@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	symphony.macgen@erm.com
- A4 - AU Tax Invoice (INV)	Email	symphony.macgen@erm.com
- Attachment - Report (SUBCO)	Email	symphony.macgen@erm.com
- Chain of Custody (CoC) (COC)	Email	symphony.macgen@erm.com
- EDI Format - ENMRG (ENMRG)	Email	symphony.macgen@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	symphony.macgen@erm.com
- EDI Format - ESDAT (ESDAT)	Email	symphony.macgen@erm.com
- EDI Format - XTab (XTAB)	Email	symphony.macgen@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
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CERTIFICATE OF ANALYSIS

Work Order	: ES1326695	Page	: 1 of 14
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0224193		
C-O-C number	: ----	Date Samples Received	: 04-DEC-2013
Sampler	: HC,GP	Issue Date	: 11-DEC-2013
Site	: BAYWATER		
Quote number	: SY/794/13	No. of samples received	: 18
		No. of samples analysed	: 13

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP080: The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.**



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories

Position

Accreditation Category

Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BO_MW02_0.2	BO_MW02_1.5	BO_MW03_2.8	BO_MW05_0.15	D01_021213_HC
				02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326695-001	ES1326695-002	ES1326695-005	ES1326695-006	ES1326695-009
EA150: Particle Sizing								
+75µm	----	1	%	17	----	----	----	----
+150µm	----	1	%	7	----	----	----	----
+300µm	----	1	%	5	----	----	----	----
+425µm	----	1	%	4	----	----	----	----
+600µm	----	1	%	4	----	----	----	----
+1180µm	----	1	%	2	----	----	----	----
+2.36mm	----	1	%	1	----	----	----	----
+4.75mm	----	1	%	<1	----	----	----	----
+9.5mm	----	1	%	<1	----	----	----	----
+19.0mm	----	1	%	<1	----	----	----	----
+37.5mm	----	1	%	<1	----	----	----	----
+75.0mm	----	1	%	<1	----	----	----	----
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	6.6	6.6	7.9	7.6	7.6
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	59	883	749	197	195
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	15.9	17.4	19.1	19.1	18.0
EA150: Soil Classification based on Particle Size								
Fines (<75 µm)	----	1	%	83	----	----	----	----
Sand (>75 µm)	----	1	%	15	----	----	----	----
Gravel (>2mm)	----	1	%	1	----	----	----	----
Cobbles (>6cm)	----	1	%	<1	----	----	----	----
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	4.5	4.7	1.0	15.4	12.1
Exchangeable Magnesium	----	0.1	meq/100g	4.0	10.4	2.2	8.2	8.5
Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.2	0.3	0.3
Exchangeable Sodium	----	0.1	meq/100g	0.6	0.5	0.9	0.2	0.3
Cation Exchange Capacity	----	0.1	meq/100g	9.3	15.8	4.2	24.1	21.2
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	10	31	6	27	8
Barium	7440-39-3	10	mg/kg	100	110	50	190	130



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BO_MW02_0.2	BO_MW02_1.5	BO_MW03_2.8	BO_MW05_0.15	D01_021213_HC
				02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326695-001	ES1326695-002	ES1326695-005	ES1326695-006	ES1326695-009
EG005T: Total Metals by ICP-AES - Continued								
Beryllium	7440-41-7	1	mg/kg	<1	1	<1	1	1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	18	21	9	23	20
Cobalt	7440-48-4	2	mg/kg	3	6	12	13	11
Copper	7440-50-8	5	mg/kg	7	24	12	22	19
Lead	7439-92-1	5	mg/kg	15	20	9	17	14
Manganese	7439-96-5	5	mg/kg	82	100	21	177	172
Molybdenum	7439-98-7	2	mg/kg	<2	2	<2	<2	<2
Nickel	7440-02-0	2	mg/kg	11	24	15	22	19
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	38	58	21	50	43
Zinc	7440-66-6	5	mg/kg	24	70	31	60	56
Thallium	7440-28-0	5	mg/kg	<5	<5	<5	<5	<5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP004: Organic Matter								
Organic Matter	----	0.5	%	1.6	----	----	----	----
Total Organic Carbon	----	0.5	%	0.9	----	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BO_MW02_0.2	BO_MW02_1.5	BO_MW03_2.8	BO_MW05_0.15	D01_021213_HC
				02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326695-001	ES1326695-002	ES1326695-005	ES1326695-006	ES1326695-009
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BO_MW02_0.2	BO_MW02_1.5	BO_MW03_2.8	BO_MW05_0.15	D01_021213_HC
				02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326695-001	ES1326695-002	ES1326695-005	ES1326695-006	ES1326695-009
EP080: BTEXN - Continued								
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	74.9	80.0	74.1	73.5	78.3
2-Chlorophenol-D4	93951-73-6	0.1	%	89.3	93.9	86.9	87.9	93.0
2,4,6-Tribromophenol	118-79-6	0.1	%	114	116	107	112	116
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	92.0	97.8	91.0	90.9	96.4
Anthracene-d10	1719-06-8	0.1	%	85.8	91.5	82.7	84.2	90.0
4-Terphenyl-d14	1718-51-0	0.1	%	82.5	87.0	81.9	81.0	86.4
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	99.1	93.1	100	99.4	94.1
Toluene-D8	2037-26-5	0.1	%	99.2	94.7	108	102	102
4-Bromofluorobenzene	460-00-4	0.1	%	92.6	85.4	97.7	94.9	92.9



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BO_MW04_2.0	BO_MW04_1.75	BQ_MW03_4.5	BQ_MW02_3.8	TRIP SPIKE
				02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326695-010	ES1326695-012	ES1326695-013	ES1326695-014	ES1326695-015
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	7.5	8.0	6.9	8.4	----
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	456	----	305	900	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	19.3	----	20.6	20.2	----
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	3.8	4.2	11.9	7.4	----
Exchangeable Magnesium	----	0.1	meq/100g	8.0	7.8	10.8	11.6	----
Exchangeable Potassium	----	0.1	meq/100g	0.5	0.4	0.3	0.3	----
Exchangeable Sodium	----	0.1	meq/100g	1.0	0.9	1.1	1.9	----
Cation Exchange Capacity	----	0.1	meq/100g	13.2	13.3	24.1	21.3	----
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	16	----	<5	27	----
Barium	7440-39-3	10	mg/kg	160	----	120	50	----
Beryllium	7440-41-7	1	mg/kg	1	----	1	1	----
Boron	7440-42-8	50	mg/kg	<50	----	<50	<50	----
Cadmium	7440-43-9	1	mg/kg	<1	----	<1	<1	----
Chromium	7440-47-3	2	mg/kg	22	----	12	12	----
Cobalt	7440-48-4	2	mg/kg	20	----	46	14	----
Copper	7440-50-8	5	mg/kg	20	----	37	42	----
Lead	7439-92-1	5	mg/kg	22	----	10	20	----
Manganese	7439-96-5	5	mg/kg	593	----	1030	1270	----
Molybdenum	7439-98-7	2	mg/kg	<2	----	<2	6	----
Nickel	7440-02-0	2	mg/kg	23	----	24	26	----
Selenium	7782-49-2	5	mg/kg	<5	----	<5	<5	----
Vanadium	7440-62-2	5	mg/kg	58	----	33	46	----
Zinc	7440-66-6	5	mg/kg	58	----	116	115	----
Thallium	7440-28-0	5	mg/kg	<5	----	<5	<5	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	<0.1	<0.1	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BO_MW04_2.0	BO_MW04_1.75	BQ_MW03_4.5	BQ_MW02_3.8	TRIP SPIKE
				02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326695-010	ES1326695-012	ES1326695-013	ES1326695-014	ES1326695-015
EP075(SIM)A: Phenolic Compounds - Continued								
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	<2	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	<10	85
C10 - C14 Fraction	----	50	mg/kg	<50	----	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	<100	<100	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BO_MW04_2.0	BO_MW04_1.75	BQ_MW03_4.5	BQ_MW02_3.8	TRIP SPIKE
				02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326695-010	ES1326695-012	ES1326695-013	ES1326695-014	ES1326695-015
EP080/071: Total Petroleum Hydrocarbons - Continued								
C29 - C36 Fraction	----	100	mg/kg	<100	----	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	<10	95
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	<10	56
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	<0.2	<0.2	0.8
Toluene	108-88-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	20.1
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	2.3
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	11.2
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	4.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	<0.2	<0.2	38.9
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	15.7
Naphthalene	91-20-3	1	mg/kg	<1	----	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	75.5	----	76.3	75.7	----
2-Chlorophenol-D4	93951-73-6	0.1	%	90.5	----	90.6	90.0	----
2,4,6-Tribromophenol	118-79-6	0.1	%	111	----	112	112	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	94.1	----	94.5	94.3	----
Anthracene-d10	1719-06-8	0.1	%	87.6	----	87.0	89.2	----
4-Terphenyl-d14	1718-51-0	0.1	%	82.5	----	85.2	85.2	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	102	----	106	98.8	98.6
Toluene-D8	2037-26-5	0.1	%	101	----	108	101	104
4-Bromofluorobenzene	460-00-4	0.1	%	91.1	----	98.4	92.0	90.5



Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Client sample ID

Client sampling date / time

				TRIP BLANK	TSC	---	---	---
				02-DEC-2013 15:00	02-DEC-2013 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1326695-016	ES1326695-018	---	---	---
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	---	10	mg/kg	<10	86	---	---	---
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	96	---	---	---
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	57	---	---	---
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	0.8	---	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	20.5	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.3	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	11.2	---	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	4.6	---	---	---
Sum of BTEX	---	0.2	mg/kg	<0.2	39.4	---	---	---
Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	15.8	---	---	---
Naphthalene	91-20-3	1	mg/kg	<1	<1	---	---	---
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	104	97.9	---	---	---
Toluene-D8	2037-26-5	0.1	%	106	104	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	95.7	91.6	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_021213_GP

Client sampling date / time

02-DEC-2013 15:00

Compound	CAS Number	LOR	Unit	ES1326695-017	---	---	---	---
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EG020T: Total Metals by ICP-MS

Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Beryllium	7440-41-7	0.001	mg/L	<0.001	---	---	---	---
Barium	7440-39-3	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Cobalt	7440-48-4	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Manganese	7439-96-5	0.001	mg/L	<0.001	---	---	---	---
Molybdenum	7439-98-7	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Selenium	7782-49-2	0.01	mg/L	<0.01	---	---	---	---
Thallium	7440-28-0	0.001	mg/L	<0.001	---	---	---	---
Vanadium	7440-62-2	0.01	mg/L	<0.01	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---
Boron	7440-42-8	0.05	mg/L	<0.05	---	---	---	---

EG035T: Total Recoverable Mercury by FIMS

Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
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EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---

EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
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Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_021213_GP

Client sampling date / time

02-DEC-2013 15:00

ES1326695-017

Compound	CAS Number	LOR	Unit					
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	---	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---	---
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---	---
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	---	---	---	---
Toluene	108-88-3	2	µg/L	<2	---	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_021213_GP

Client sampling date / time

02-DEC-2013 15:00

Compound	CAS Number	LOR	Unit	ES1326695-017	---	---	---	---
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EP080: BTEXN - Continued

Ethylbenzene	100-41-4	2	µg/L	<2	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	---	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	---	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	---	---	---	---
^ Sum of BTEX	----	1	µg/L	<1	---	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	---	---	---	---

EP075(SIM)S: Phenolic Compound Surrogates

Phenol-d6	13127-88-3	0.1	%	34.1	---	---	---	---
2-Chlorophenol-D4	93951-73-6	0.1	%	74.5	---	---	---	---
2.4.6-Tribromophenol	118-79-6	0.1	%	85.8	---	---	---	---

EP075(SIM)T: PAH Surrogates

2-Fluorobiphenyl	321-60-8	0.1	%	80.8	---	---	---	---
Anthracene-d10	1719-06-8	0.1	%	67.8	---	---	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	69.0	---	---	---	---

EP080S: TPH(V)/BTEX Surrogates

1.2-Dichloroethane-D4	17060-07-0	0.1	%	90.3	---	---	---	---
Toluene-D8	2037-26-5	0.1	%	112	---	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	104	---	---	---	---



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

Certificate of Analysis

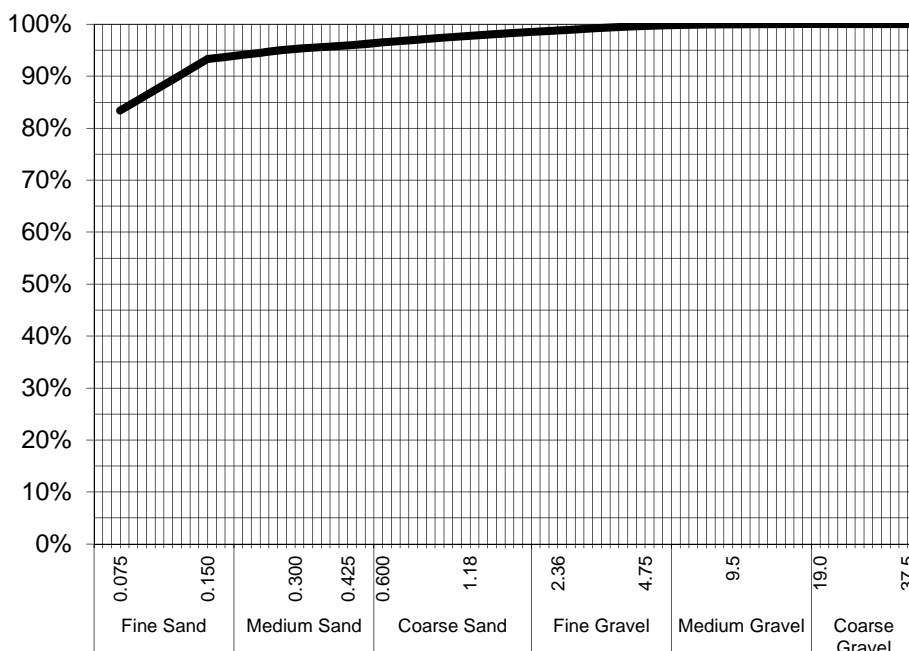
ALS Laboratory Group Pty Ltd
 5 Rosegum Road
 Warabrook, NSW 2304
 pH 02 4968 9433
 fax 02 4968 0349
 samples.newcastle@alsenviro.com

ALS Environmental
Newcastle, NSW



CLIENT: Joseph Ferring **DATE REPORTED:** 11-Dec-2013
COMPANY: Enviro Resources Management **DATE RECEIVED:** 4-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1326695-001 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** BO_MW02_0.2

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	100%
2.36	99%
1.18	98%
0.600	97%
0.425	96%
0.300	95%
0.150	93%
0.075	83%

Samples analysed as received.

Sample Comments:

Analysed: 11-Dec-13

Loss on Pretreatment: NA

Limit of Reporting: 1%

Sample Description: Fines and sand

Test Method: AS1289.3.6.1

Hamish Murray
 Laboratory Supervisor, Newcastle
Authorised Signatory

NATA Accreditation: 825 Site: Newcastle
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QUALITY CONTROL REPORT

Work Order	: ES1326695	Page	: 1 of 15
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYWATER	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 11-DEC-2013
Sampler	: HC,GP	No. of samples received	: 18
Order number	: 0224193	No. of samples analysed	: 13
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC



NATA Accredited
Laboratory 825

Accredited for
compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA002 : pH (Soils) (QC Lot: 3200397)									
ES1326695-001	BO_MW02_0.2	EA002: pH Value	----	0.1	pH Unit	6.6	6.5	0.0	0% - 20%
ES1326789-002	Anonymous	EA002: pH Value	----	0.1	pH Unit	7.0	7.0	0.0	0% - 20%
EA010: Conductivity (QC Lot: 3200398)									
ES1326695-001	BO_MW02_0.2	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	59	59	0.0	0% - 20%
ES1326789-003	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	170	171	0.0	0% - 20%
EA055: Moisture Content (QC Lot: 3202068)									
ES1326045-012	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	7.8	7.8	0.0	No Limit
ES1326695-002	BO_MW02_1.5	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	17.4	19.6	12.2	0% - 50%
ED007: Exchangeable Cations (QC Lot: 3200409)									
ES1326695-001	BO_MW02_0.2	ED007: Exchangeable Calcium	----	0.1	meq/100g	4.5	4.3	4.8	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	4.0	3.8	5.3	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.6	0.6	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	9.3	8.8	5.3	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 3201775)									
ES1326695-001	BO_MW02_0.2	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	100	90	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	18	18	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	3	3	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	11	10	9.8	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	10	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	6	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	15	13	11.1	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	82	72	12.5	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	38	38	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	24	22	11.5	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
		ES1326695-013	BQ_MW03_4.5	EG005T: Beryllium	7440-41-7	1	mg/kg	1	1
EG005T: Cadmium	7440-43-9			1	mg/kg	<1	<1	0.0	No Limit
EG005T: Barium	7440-39-3			10	mg/kg	120	90	25.0	0% - 50%



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005T: Total Metals by ICP-AES (QC Lot: 3201775) - continued									
ES1326695-013	BQ_MW03_4.5	EG005T: Chromium	7440-47-3	2	mg/kg	12	11	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	46	54	17.1	0% - 20%
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	24	31	26.4	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	37	34	7.4	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	10	11	12.4	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	1030	1230	17.5	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	33	32	4.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	116	112	3.4	0% - 20%
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3201776)									
ES1326695-001	BO_MW02_0.2	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP004: Organic Matter (QC Lot: 3203036)									
ES1326253-001	Anonymous	EP004: Organic Matter	----	0.5	%	16.3	14.0	14.6	0% - 20%
		EP004: Total Organic Carbon	----	0.5	%	9.4	8.1	14.6	0% - 50%
EP075(SIM)A: Phenolic Compounds (QC Lot: 3201953)									
ES1326695-001	BO_MW02_0.2	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3201953)									
ES1326695-001	BO_MW02_0.2	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3201953) - continued										
ES1326695-001	BO_MW02_0.2	EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3199538)										
ES1326597-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1326695-002	BO_MW02_1.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3201952)										
ES1326695-001	BO_MW02_0.2	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3199538)										
ES1326597-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1326695-002	BO_MW02_1.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3201952)										
ES1326695-001	BO_MW02_0.2	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
EP080: BTEXN (QC Lot: 3199538)										
ES1326597-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1326695-002	BO_MW02_1.5	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EG020T: Total Metals by ICP-MS (QC Lot: 3202635)										
ES1326320-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.004	0.004	0.0	No Limit	
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.016	0.016	0.0	0% - 50%	
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.001	<0.001	0.0	No Limit	
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.005	0.004	0.0	No Limit	
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.001	<0.001	0.0	No Limit	
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.022	0.024	6.8	0% - 20%	
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	0.012	0.012	0.0	0% - 50%	
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.001	0.0	No Limit	
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.011	0.011	0.0	No Limit	
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.02	0.0	No Limit	
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
EG020A-T: Boron	7440-42-8	0.05	mg/L	2.67	2.68	0.0	0% - 20%			
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3201893)										
ES1326056-006	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
ES1326695-017	R01_021213_GP	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3202155)										
EP1309401-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	280	290	0.0	0% - 50%	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3202155)										
EP1309401-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	420	430	4.4	0% - 20%	
EP080: BTEXN (QC Lot: 3202155)										
EP1309401-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	9	10	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	11	12	0.0	No Limit	
	EP080: Naphthalene	91-20-3	5	µg/L	13	13	0.0	No Limit		



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EA010: Conductivity (QCLot: 3200398)									
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	101	70	130	
ED007: Exchangeable Cations (QCLot: 3200409)									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3201775)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	117	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	107	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	114	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	105	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	112	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	107	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	117	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	107	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	115	85	127	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	114	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	114	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	96.0	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	114	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	107	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	105	70	130	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3201776)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	111	66	112	
EP004: Organic Matter (QCLot: 3203036)									
EP004: Organic Matter	----	0.5	%	<0.5	4.58 %	99.8	85	105	
EP004: Total Organic Carbon	----	0.5	%	<0.5	2.66 %	99.6	84	106	
EP075(SIM)A: Phenolic Compounds (QCLot: 3201953)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	81.4	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	90.5	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	92.8	72	116	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 3201953) - continued									
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	94.5	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	83.7	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	87.2	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	92.6	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	96.6	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	90.0	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	87.1	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	83.1	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	20.1	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3201953)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	93.6	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	100	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	93.3	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	103	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	98.5	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	98.0	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	102	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	103	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	93.9	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	95.4	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	92.9	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	98.0	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	97.3	76	122	
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	83.4	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	82.3	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	84.3	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199538)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	90.7	68.4	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3201952)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	91.2	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	86.0	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	82.0	64	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199538)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	90.8	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3201952)									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	91.7	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	83.7	74	138	



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3201952) - continued									
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	----
		50	mg/kg	----	150 mg/kg	65.2	63	131	
EP080: BTEXN (QCLot: 3199538)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	91.8	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	96.2	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	92.3	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	92.8	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	96.9	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	98.6	62	138	
Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
EG020T: Total Metals by ICP-MS (QCLot: 3202635)									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	79	121	
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	86.6	76	120	
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	99.0	84	116	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	101	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	100	83	115	
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	97.3	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	101	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	101	85	115	
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	88.1	83	115	
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	101	81	125	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.9	83	117	
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	98.8	68	128	
EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	101	86	116	
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	103	84	114	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	106	76	118	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	104	73	127	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3201893)									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	94.6	77	115	
EP075(SIM)A: Phenolic Compounds (QCLot: 3205628)									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	20 µg/L	44.8	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	20 µg/L	102	63.8	110	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 3205628) - continued									
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	20 µg/L	95.1	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	40 µg/L	92.9	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	20 µg/L	75.9	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	20 µg/L	101	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	20 µg/L	103	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	20 µg/L	103	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	20 µg/L	98.2	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	20 µg/L	85.1	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	20 µg/L	78.6	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	40 µg/L	26.8	8.7	95	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3205628)									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	20 µg/L	82.5	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	20 µg/L	91.1	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	20 µg/L	90.3	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	20 µg/L	94.7	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	20 µg/L	104	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	20 µg/L	99.5	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	20 µg/L	104	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	20 µg/L	104	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	20 µg/L	92.9	64.1	117	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3205628) - continued									
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	20 µg/L	94.9	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	20 µg/L	80.8	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	20 µg/L	93.6	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	20 µg/L	93.0	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	20 µg/L	86.0	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	20 µg/L	84.6	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	20 µg/L	80.9	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3202155)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	108	75	127	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205627)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	94.1	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	106	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	89.2	62	120	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3202155)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	113	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205627)									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	119	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	97.2	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	86.0	67	127	
EP080: BTEXN (QCLot: 3202155)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	98.9	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	98.6	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	108	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	106	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	108	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	118	70	124	

Matrix Spike (MS) Report



The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
					Low	High	
EG005T: Total Metals by ICP-AES (QCLot: 3201775)							
ES1326695-001	BO_MW02_0.2	EG005T: Arsenic	7440-38-2	50 mg/kg	112	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	103	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	104	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	108	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	106	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	106	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	104	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	104	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3201776)							
ES1326695-001	BO_MW02_0.2	EG035T: Mercury	7439-97-6	5 mg/kg	110	70	130
EP004: Organic Matter (QCLot: 3203036)							
ES1326695-001	BO_MW02_0.2	EP004: Organic Matter	----	0.99 %	110	----	----
		EP004: Total Organic Carbon	----	0.57 %	110	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3201953)							
ES1326695-001	BO_MW02_0.2	EP075(SIM): Phenol	108-95-2	10 mg/kg	77.0	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	83.2	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	78.3	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	86.3	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	88.0	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3201953)							
ES1326695-001	BO_MW02_0.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	81.5	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	92.1	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199538)							
ES1326597-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	103	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3201952)							
ES1326695-001	BO_MW02_0.2	EP071: C10 - C14 Fraction	----	640 mg/kg	101	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	111	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	79.8	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199538)							
ES1326597-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	100	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3201952)							
ES1326695-001	BO_MW02_0.2	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	117	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	78.6	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	71.9	52	132



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP080: BTEXN (QCLot: 3199538)								
ES1326597-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	92.2	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	94.2	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	92.8	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	92.6	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	94.0	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	90.6	70	130		

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 3202635)							
ES1326320-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	114	70	130
		EG020A-T: Beryllium	7440-41-7	1 mg/L	94.5	70	130
		EG020A-T: Barium	7440-39-3	1 mg/L	112	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	120	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	117	70	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	109	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	126	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	118	70	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	96.6	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	99.0	70	130
		EG020A-T: Vanadium	7440-62-2	1 mg/L	125	70	130
			EG020A-T: Zinc	7440-66-6	1 mg/L	114	70
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3201893)							
ES1326649-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	93.9	70	130

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199538)											
ES1326597-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	103	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199538)											
ES1326597-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	100	----	70	130	----	----	
EP080: BTEXN (QCLot: 3199538)											



Sub-Matrix: SOIL					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number								
EP080: BTEXN (QCLot: 3199538) - continued											
ES1326597-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	92.2	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	94.2	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	92.8	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	92.6	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	94.0	----	70	130	----	----	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	90.6	----	70	130	----	----		
EG005T: Total Metals by ICP-AES (QCLot: 3201775)											
ES1326695-001	BO_MW02_0.2	EG005T: Arsenic	7440-38-2	50 mg/kg	112	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	103	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	104	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	108	----	70	130	----	----	
		EG005T: Lead	7439-92-1	125 mg/kg	106	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	106	----	70	130	----	----	
		EG005T: Selenium	7782-49-2	50 mg/kg	104	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	125 mg/kg	104	----	70	130	----	----	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3201776)											
ES1326695-001	BO_MW02_0.2	EG035T: Mercury	7439-97-6	5 mg/kg	110	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3201952)											
ES1326695-001	BO_MW02_0.2	EP071: C10 - C14 Fraction	----	640 mg/kg	101	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	111	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	79.8	----	52	132	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3201952)											
ES1326695-001	BO_MW02_0.2	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	117	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	78.6	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	71.9	----	52	132	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3201953)											
ES1326695-001	BO_MW02_0.2	EP075(SIM): Phenol	108-95-2	10 mg/kg	77.0	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	83.2	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	78.3	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	86.3	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	88.0	----	20	130	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3201953)											
ES1326695-001	BO_MW02_0.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	81.5	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	92.1	----	70	130	----	----	
EP004: Organic Matter (QCLot: 3203036)											
ES1326695-001	BO_MW02_0.2	EP004: Organic Matter	----	0.99 %	110	----	----	----	----	----	
		EP004: Total Organic Carbon	----	0.57 %	110	----	----	----	----	----	



Sub-Matrix: WATER

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3201893)										
ES1326649-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	93.9	----	70	130	----	----
EG020T: Total Metals by ICP-MS (QCLot: 3202635)										
ES1326320-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	114	----	70	130	----	----
		EG020A-T: Beryllium	7440-41-7	1 mg/L	94.5	----	70	130	----	----
		EG020A-T: Barium	7440-39-3	1 mg/L	112	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	120	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	117	----	70	130	----	----
		EG020A-T: Cobalt	7440-48-4	1 mg/L	109	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	126	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	118	----	70	130	----	----
		EG020A-T: Manganese	7439-96-5	1 mg/L	96.6	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	99.0	----	70	130	----	----
		EG020A-T: Vanadium	7440-62-2	1 mg/L	125	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	114	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326695	Page	: 1 of 9
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYWATER	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 11-DEC-2013
Sampler	: HC,GP	No. of samples received	: 18
Order number	: 0224193	No. of samples analysed	: 13
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002 : pH (Soils)							
Snap Lock Bag (EA002) BO_MW04_1.75	02-DEC-2013	09-DEC-2013	09-DEC-2013	✓	09-DEC-2013	09-DEC-2013	✓
Soil Glass Jar - Unpreserved (EA002) BO_MW02_0.2, BO_MW03_2.8, D01_021213_HC, BQ_MW03_4.5, BO_MW02_1.5, BO_MW05_0.15, BO_MW04_2.0, BQ_MW02_3.8	02-DEC-2013	09-DEC-2013	09-DEC-2013	✓	09-DEC-2013	09-DEC-2013	✓
EA010: Conductivity							
Soil Glass Jar - Unpreserved (EA010) BO_MW02_0.2, BO_MW03_2.8, D01_021213_HC, BQ_MW03_4.5, BO_MW02_1.5, BO_MW05_0.15, BO_MW04_2.0, BQ_MW02_3.8	02-DEC-2013	09-DEC-2013	09-DEC-2013	✓	09-DEC-2013	06-JAN-2014	✓
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103) BO_MW02_0.2, BO_MW03_2.8, D01_021213_HC, BQ_MW03_4.5, BO_MW02_1.5, BO_MW05_0.15, BO_MW04_2.0, BQ_MW02_3.8	02-DEC-2013	---	---	---	09-DEC-2013	16-DEC-2013	✓
EA150: Particle Sizing							
Snap Lock Bag (EA150) BO_MW02_0.2	02-DEC-2013	---	31-MAY-2014	---	11-DEC-2013	08-JUN-2014	✓
EA150: Soil Classification based on Particle Size							
Snap Lock Bag (EA150) BO_MW02_0.2	02-DEC-2013	---	31-MAY-2014	---	11-DEC-2013	08-JUN-2014	✓



Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED007: Exchangeable Cations							
Snap Lock Bag (ED007) BO_MW04_1.75	02-DEC-2013	09-DEC-2013	30-DEC-2013	✓	10-DEC-2013	30-DEC-2013	✓
Soil Glass Jar - Unpreserved (ED007) BO_MW02_0.2, BO_MW03_2.8, D01_021213_HC, BQ_MW03_4.5 BO_MW02_1.5, BO_MW05_0.15, BO_MW04_2.0, BQ_MW02_3.8	02-DEC-2013	09-DEC-2013	30-DEC-2013	✓	10-DEC-2013	30-DEC-2013	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) BO_MW02_0.2, BO_MW03_2.8, D01_021213_HC, BQ_MW03_4.5 BO_MW02_1.5, BO_MW05_0.15, BO_MW04_2.0, BQ_MW02_3.8	02-DEC-2013	09-DEC-2013	31-MAY-2014	✓	10-DEC-2013	31-MAY-2014	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) BO_MW02_0.2, BO_MW03_2.8, D01_021213_HC, BQ_MW03_4.5 BO_MW02_1.5, BO_MW05_0.15, BO_MW04_2.0, BQ_MW02_3.8	02-DEC-2013	09-DEC-2013	30-DEC-2013	✓	10-DEC-2013	30-DEC-2013	✓
EP004: Organic Matter							
Soil Glass Jar - Unpreserved (EP004) BO_MW02_0.2	02-DEC-2013	10-DEC-2013	30-DEC-2013	✓	10-DEC-2013	30-DEC-2013	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) BO_MW02_0.2, BO_MW03_2.8, D01_021213_HC, BQ_MW03_4.5 BO_MW02_1.5, BO_MW05_0.15, BO_MW04_2.0, BQ_MW02_3.8	02-DEC-2013	09-DEC-2013	16-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) BO_MW02_0.2, BO_MW03_2.8, D01_021213_HC, BQ_MW03_4.5 BO_MW02_1.5, BO_MW05_0.15, BO_MW04_2.0, BQ_MW02_3.8	02-DEC-2013	09-DEC-2013	16-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) BO_MW02_0.2, BO_MW03_2.8, D01_021213_HC, BQ_MW03_4.5 BO_MW02_1.5, BO_MW05_0.15, BO_MW04_2.0, BQ_MW02_3.8	02-DEC-2013	09-DEC-2013	16-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓



Matrix: **SOIL** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) BO_MW02_0.2, BO_MW03_2.8, D01_021213_HC, BQ_MW03_4.5, TRIP SPIKE, TSC	BO_MW02_1.5, BO_MW05_0.15, BO_MW04_2.0, BQ_MW02_3.8, TRIP BLANK,	02-DEC-2013	09-DEC-2013	16-DEC-2013	✓	10-DEC-2013	16-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Soil Glass Jar - Unpreserved (EP080) BO_MW02_0.2, BO_MW03_2.8, D01_021213_HC, BQ_MW03_4.5, TRIP SPIKE, TSC	BO_MW02_1.5, BO_MW05_0.15, BO_MW04_2.0, BQ_MW02_3.8, TRIP BLANK,	02-DEC-2013	09-DEC-2013	16-DEC-2013	✓	10-DEC-2013	16-DEC-2013	✓

Matrix: **WATER** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EG020T: Total Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_021213_GP		02-DEC-2013	10-DEC-2013	31-MAY-2014	✓	10-DEC-2013	31-MAY-2014	✓
EG035T: Total Recoverable Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_021213_GP		02-DEC-2013	----	----	----	09-DEC-2013	30-DEC-2013	✓
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071) R01_021213_GP		02-DEC-2013	09-DEC-2013	09-DEC-2013	✓	11-DEC-2013	20-JAN-2014	✓
EP075(SIM)A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_021213_GP		02-DEC-2013	09-DEC-2013	09-DEC-2013	✓	11-DEC-2013	20-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_021213_GP		02-DEC-2013	09-DEC-2013	09-DEC-2013	✓	11-DEC-2013	20-JAN-2014	✓
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) R01_021213_GP		02-DEC-2013	09-DEC-2013	16-DEC-2013	✓	09-DEC-2013	16-DEC-2013	✓
EP080/071: Total Petroleum Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP080) R01_021213_GP		02-DEC-2013	09-DEC-2013	16-DEC-2013	✓	09-DEC-2013	16-DEC-2013	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Electrical Conductivity (1:5)	EA010	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	9	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Organic Matter	EP004	1	4	25.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	9	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	8	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	12	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	9	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Electrical Conductivity (1:5)	EA010	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Organic Matter	EP004	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Electrical Conductivity (1:5)	EA010	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Organic Matter	EP004	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Organic Matter	EP004	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	6	33.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	3	33.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	2	50.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Electrical Conductivity (1:5)	EA010	SOIL	(APHA 21st ed., 2510) Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 104)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis (Sieving)	EA150	SOIL	Particle Size Analysis by Sieving according to AS1289.3.6.1 - 2009
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Organic Matter	EP004	SOIL	AS1289.4.1.1 - 1997., Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM (2013) Schedule B(3) (Method 105)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.



Analytical Methods	Method	Matrix	Method Descriptions
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH ₄ Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Organic Matter	EP004-PR	SOIL	AS1289.4.1.1 - 1997., Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM (2013) Schedule B(3) (Method 105)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

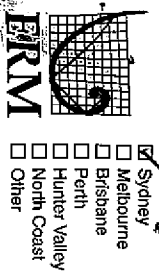
This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-



Sydney
 Melbourne
 Brisbane
 Perth
 Hunter Valley
 North Coast
 Other

Grand Floor, 33 Saunders Street, Pyrmont, NSW, 2009. (ph) 02 8584 8888 (fax) 02 8584 8800
 Level 3, Yarra Tower, WTC, 18-38 Siddaley Street, Docklands VIC, 3005. (ph) 03 9696 8011 (fax) 03 9696 8022
 Level 1, 60 Leichhardt Street, Spring Hill, QLD, 4004. (ph) 07 3639 6393 (fax) 07 3639 8381
 Level 6, Grain Pool Bld, 172 St Georges Tce, WA, 6850. (ph) 08 9321 5200 (fax) 08 9321 5262
 53 Bonville Avenue, Thornton, NSW, 2322. (ph) 02 4964 2150 (fax) 02 4964 2152
 Suite 3/146 Gordon Street, Port Macquarie, NSW, 2444. (ph) 02 6584 7155 (fax) 02 6584 7160

General Analysis Requirements: Yes (tick) No (tick)

1. Turn Around Time (please tick): 1 Day 2 Days 3 Days Normal TAT

2. Do you wish any sediment layers in water to be excluded from extractions? Yes No

3. Additional QA/QC reported where sample batches are < 10 samples? Yes No

4. % of extraneous material removed from samples to be reported as per NIEPM 5.1.1? Yes No

Laboratory Number	Sample ID	Sample Depth	Sample Date	Sample Time	Matrix					Containers (number/type)	BTEX + TRH	TPH (C8-C9 P & T) + TPH (C10-C36)	Speciated TPH	VOC Scan	SVOC Scan (USEPA 8270 List)	OC OP Pesticides	PAH	Phenols	PCB	Metals* (dissolved) (note)	Other Comments on sample (eg: high voc, highly contaminated, special detection limits etc)
					Soil	Water	Other	Ice	Acid												
1	BM_S801_2.5		5/12		X					1	X						X	X	X		
2	BM_S802_0.9									1	X		X				X	X	X		
3	BM_S803_1.7									1	X						X	X	X		
4	BM_S804_1.3									1	X						X	X	X		
5	BM_S805_1.8									1	X						X	X	X		
6	BM_S806_1.8									1	X						X	X	X		
7	BM_S807_1.6									1	X						X	X	X		
8	BM_MM01_1.6									1	X						X	X	X		
9	BM_S808_3.0									1	X						X	X	X		
10	BM_S808_4.6									1	X						X	X	X		
11	BM_S809_3.0		5/12							1	X						X	X	X		
12	Trip Spike		25/11							1	X						X	X	X		
13	Trip Blank		No date							1	X						X	X	X		
14	TSC 8		25/11							1	X						X	X	X		
15	BD-MM01-1.1		3/12							1	X						X	X	X		

Comments: Symphony.molgen@erm.com

Requisitioned by: Carin Powell Signed: [Signature] Date/Time: 6/12/13 0600 Received by: EA Date/Time: 10/12/13 1430

Requisitioned by: EA Signed: [Signature] Date/Time: 6/12/13 1700 Received by: EA2 Date/Time: 10/12/13 0900

Environmental Division
 Sydney
 Work Order
ES1326978
 Telephone: +61-2-8784 8555

*Metals (total)
 As Cd Cr Cu Hg Ni Pb Zn

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1326978	
Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800	E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555
Project : 0224193 SYMPHONY Order number : ---- C-O-C number : 11740 Site : BAYSWATER Sampler : G.P	Page : 1 of 3 Quote number : ES2013ENVRES0354 (EN/009/13) QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 10-DEC-2013 Client Requested Due Date : 16-DEC-2013	Issue Date : 11-DEC-2013 17:14 Scheduled Reporting Date : 16-DEC-2013
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Delivery Details

Mode of Delivery : Carrier No. of coolers/boxes : 1 HARD Security Seal : Intact.	Temperature : 5°C - Ice present No. of samples received : 15 No. of samples analysed : 13
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General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1326978-001	05-DEC-2013 15:00	BM_SB01_2.5		✓	✓		✓
ES1326978-002	05-DEC-2013 15:00	BM_SB02_0.9					✓
ES1326978-003	05-DEC-2013 15:00	BM_SB03_1.7					✓
ES1326978-004	05-DEC-2013 15:00	BM_SB04_1.3					✓
ES1326978-005	05-DEC-2013 15:00	BM_SB05_1.8					✓
ES1326978-006	05-DEC-2013 15:00	BM_SB06_1.8					✓
ES1326978-007	05-DEC-2013 15:00	BM_SB07_1.6					✓
ES1326978-008	05-DEC-2013 15:00	BM_MW04_1.6					✓
ES1326978-009	05-DEC-2013 15:00	BM_SB08_3.0	✓				
ES1326978-010	05-DEC-2013 15:00	BM_SB08_4.6					✓
ES1326978-011	05-DEC-2013 15:00	BM_SB09_3.0					✓
ES1326978-012	25-NOV-2013 15:00	TRIP SPIKE				✓	
ES1326978-013	25-NOV-2013 15:00	TRIP BLANK				✓	
ES1326978-014	25-NOV-2013 15:00	TSC 8				✓	
ES1326978-015	03-DEC-2013 15:00	BO_MW01_1.1	✓				

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **SOIL**

Evaluation: ✘ = Holding time breach ; ✓ = Within holding time.

Method		Due for extraction	Due for analysis	Samples Received		Instructions Received	
Client Sample ID(s)	Container			Date	Evaluation	Date	Evaluation
EP080: TPH Volatiles/BTEX							
TRIP BLANK	Soil Glass Jar - Unpreserved	09-DEC-2013	----	10-DEC-2013	✘	----	----
TRIP SPIKE	Soil Glass Jar - Unpreserved	09-DEC-2013	----	10-DEC-2013	✘	----	----
TSC 8	Soil Glass Jar - Unpreserved	09-DEC-2013	----	10-DEC-2013	✘	----	----



Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA)	Email	joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	joseph.ferring@erm.com
- Chain of Custody (CoC) (COC)	Email	joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	joseph.ferring@erm.com
- EDI Format - XTab (XTAB)	Email	joseph.ferring@erm.com

SYMPHONY MACGEN

- *AU Certificate of Analysis - NATA (COA)	Email	symphony.macgen@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	symphony.macgen@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	symphony.macgen@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	symphony.macgen@erm.com
- Chain of Custody (CoC) (COC)	Email	symphony.macgen@erm.com
- EDI Format - ENMRG (ENMRG)	Email	symphony.macgen@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	symphony.macgen@erm.com
- EDI Format - ESDAT (ESDAT)	Email	symphony.macgen@erm.com
- EDI Format - XTab (XTAB)	Email	symphony.macgen@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
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CERTIFICATE OF ANALYSIS

Work Order : ES1326978 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : 0224193 SYMPHONY Order number : ---- C-O-C number : 11740 Sampler : G.P Site : BAYSWATER Quote number : SY/794/13	Page : 1 of 12 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 10-DEC-2013 Issue Date : 16-DEC-2013 No. of samples received : 15 No. of samples analysed : 13
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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EG005T: Poor matrix spike recovery was obtained for Copper and Lead on sample ES1326949 #008. Results have been confirmed by re-extraction and reanalysis.**
- **EP080: The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.**



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BM_SB01_2.5	BM_SB02_0.9	BM_SB03_1.7	BM_SB04_1.3	BM_SB05_1.8
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326978-001	ES1326978-002	ES1326978-003	ES1326978-004	ES1326978-005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	20.1	21.2	13.6	18.1	14.5
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	7	8	<5	12	14
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	13	18	22	8	11
Copper	7440-50-8	5	mg/kg	126	20	21	24	36
Lead	7439-92-1	5	mg/kg	36	15	16	15	16
Nickel	7440-02-0	2	mg/kg	14	23	19	23	16
Zinc	7440-66-6	5	mg/kg	78	64	82	77	56
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	0.5	mg/kg	<0.5	----	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	----	----	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	----	----	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	----	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	----	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	----	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	5	mg/kg	<5	----	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	----	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	----	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	----	----	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BM_SB01_2.5	BM_SB02_0.9	BM_SB03_1.7	BM_SB04_1.3	BM_SB05_1.8
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326978-001	ES1326978-002	ES1326978-003	ES1326978-004	ES1326978-005
EP074D: Fumigants - Continued								
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	----	----	----
Chloromethane	74-87-3	5	mg/kg	<5	----	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	----	----	----	----
Bromomethane	74-83-9	5	mg/kg	<5	----	----	----	----
Chloroethane	75-00-3	5	mg/kg	<5	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	----	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	----	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	----	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	----	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	----	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	----	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	----	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BM_SB01_2.5	BM_SB02_0.9	BM_SB03_1.7	BM_SB04_1.3	BM_SB05_1.8
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326978-001	ES1326978-002	ES1326978-003	ES1326978-004	ES1326978-005
EP074F: Halogenated Aromatic Compounds - Continued								
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	----	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	----	----	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	----	----	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	----	----	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	5	mg/kg	<5	----	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BM_SB01_2.5	BM_SB02_0.9	BM_SB03_1.7	BM_SB04_1.3	BM_SB05_1.8
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326978-001	ES1326978-002	ES1326978-003	ES1326978-004	ES1326978-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BM_SB01_2.5	BM_SB02_0.9	BM_SB03_1.7	BM_SB04_1.3	BM_SB05_1.8
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326978-001	ES1326978-002	ES1326978-003	ES1326978-004	ES1326978-005
EP080: BTEXN - Continued								
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	90.1	----	----	----	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	76.3	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	82.9	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	97.2	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	99.2	96.0	108	112	105
2-Chlorophenol-D4	93951-73-6	0.1	%	99.6	91.4	107	110	103
2,4,6-Tribromophenol	118-79-6	0.1	%	58.1	51.7	56.4	58.8	53.2
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	88.2	92.9	92.3	96.4	90.1
Anthracene-d10	1719-06-8	0.1	%	84.6	88.3	87.9	91.1	85.5
4-Terphenyl-d14	1718-51-0	0.1	%	86.0	90.2	89.2	92.9	87.3
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	94.8	81.8	86.6	85.5	89.0
Toluene-D8	2037-26-5	0.1	%	96.2	82.6	82.5	84.9	87.0
4-Bromofluorobenzene	460-00-4	0.1	%	100	92.8	93.3	95.3	98.0



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BM_SB06_1.8	BM_SB07_1.6	BM_MW04_1.6	BM_SB08_4.6	BM_SB09_3.0
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326978-006	ES1326978-007	ES1326978-008	ES1326978-010	ES1326978-011
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	11.9	14.0	17.4	12.8	15.0
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	14	11	10	22
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	12	14	20	12	7
Copper	7440-50-8	5	mg/kg	26	37	34	18	28
Lead	7439-92-1	5	mg/kg	11	11	16	13	25
Nickel	7440-02-0	2	mg/kg	9	19	24	51	24
Zinc	7440-66-6	5	mg/kg	51	92	98	113	77
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BM_SB06_1.8	BM_SB07_1.6	BM_MW04_1.6	BM_SB08_4.6	BM_SB09_3.0
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326978-006	ES1326978-007	ES1326978-008	ES1326978-010	ES1326978-011
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BM_SB06_1.8	BM_SB07_1.6	BM_MW04_1.6	BM_SB08_4.6	BM_SB09_3.0
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326978-006	ES1326978-007	ES1326978-008	ES1326978-010	ES1326978-011
EP080: BTEXN - Continued								
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	112	109	100	96.7	110
2-Chlorophenol-D4	93951-73-6	0.1	%	111	106	99.1	95.8	110
2.4.6-Tribromophenol	118-79-6	0.1	%	57.2	55.4	48.1	46.7	51.9
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	96.9	96.0	87.7	86.3	94.5
Anthracene-d10	1719-06-8	0.1	%	92.1	91.0	82.8	81.6	89.5
4-Terphenyl-d14	1718-51-0	0.1	%	93.6	93.0	84.6	84.4	91.0
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	86.3	84.6	79.7	82.2	81.8
Toluene-D8	2037-26-5	0.1	%	87.3	86.0	80.7	82.9	83.4
4-Bromofluorobenzene	460-00-4	0.1	%	97.0	97.5	91.8	93.9	94.9



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TRIP SPIKE	TRIP BLANK	TSC 8	----	----
				25-NOV-2013 15:00	25-NOV-2013 15:00	25-NOV-2013 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1326978-012	ES1326978-013	ES1326978-014	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	78	<10	84	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	90	<10	96	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	56	<10	58	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	0.6	<0.2	0.7	----	----
Toluene	108-88-3	0.5	mg/kg	16.8	<0.5	18.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	2.2	<0.5	2.4	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	10.6	<0.5	11.6	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	4.3	<0.5	4.7	----	----
^ Sum of BTEX	----	0.2	mg/kg	34.5	<0.2	37.9	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	14.9	<0.5	16.3	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	94.8	77.1	95.8	----	----
Toluene-D8	2037-26-5	0.1	%	103	79.0	102	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	116	90.7	115	----	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

QUALITY CONTROL REPORT

Work Order	: ES1326978	Page	: 1 of 17
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: 0224193 SYMPHONY	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 10-DEC-2013
C-O-C number	: 11740	Issue Date	: 16-DEC-2013
Sampler	: G.P	No. of samples received	: 15
Order number	: ----	No. of samples analysed	: 13
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited
Laboratory 825

Accredited for
compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC



Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA055: Moisture Content (QC Lot: 3208515)									
ES1326975-003	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	21.6	23.3	7.8	0% - 20%
ES1326976-005	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	24.0	23.9	0.5	0% - 20%
EA055: Moisture Content (QC Lot: 3208516)									
ES1326978-005	BM_SB05_1.8	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	14.5	13.0	10.8	0% - 50%
ES1327004-006	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	19.8	20.3	2.4	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 3210767)									
ES1326949-008	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	22	32	38.7	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	224	198	12.4	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	378	407	7.3	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	150	141	6.1	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	1370	1370	0.3	0% - 20%
ES1326978-001	BM_SB01_2.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	13	17	23.2	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	14	14	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	10	29.2	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	126	141	11.4	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	36	22	48.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	78	90	14.0	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3210766)									
ES1326978-002	BM_SB02_0.9	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326978-001	BM_SB01_2.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3208625)									
ES1326974-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326976-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3207925)									
ES1326975-002	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3207925) - continued									
ES1326975-002	Anonymous	EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1326976-001	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 3207925)									
ES1326975-002	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
ES1326976-001	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3207925)									
ES1326975-002	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1326976-001	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3207925)									
ES1326975-002	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1326976-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3207925)									
ES1326975-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3207925) - continued									
ES1326975-002	Anonymous	EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
ES1326976-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3207925) - continued									
ES1326976-001	Anonymous	EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 3207925)									
ES1326975-002	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1326976-001	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 3207925)									
ES1326975-002	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1326976-001	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3207925)									
ES1326975-002	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
ES1326976-001	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3208603)									
ES1326914-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<2	<2	0.0	No Limit
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
ES1326978-001	BM_SB01_2.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3208603)									
ES1326914-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.8	<0.8	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3208603) - continued									
ES1326914-001	Anonymous	EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1326978-001	BM_SB01_2.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3207924)									
ES1326975-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1326976-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3207968)									
ES1326978-002	BM_SB02_0.9	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1326978-011	BM_SB09_3.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3208602)									
ES1326914-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	370	440	17.7	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	230	230	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1326978-001	BM_SB01_2.5	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3207924)									
ES1326975-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1326976-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3207968)									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3207968) - continued										
ES1326978-002	BM_SB02_0.9	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1326978-011	BM_SB09_3.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3208602)										
ES1326914-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	520	570	9.1	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1326978-001	BM_SB01_2.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
EP080: BTEXN (QC Lot: 3207924)										
ES1326975-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1326976-001	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			
EP080: BTEXN (QC Lot: 3207968)										
ES1326978-002	BM_SB02_0.9	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1326978-011	BM_SB09_3.0	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EG005T: Total Metals by ICP-AES (QCLot: 3210767)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	126	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	114	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	118	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	116	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	115	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	126	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	126	81	133	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3210766)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	110	66	112	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3208625)									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	85.9	57.4	117	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3207925)									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	94.6	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	88.6	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	84.5	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	87.4	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	86.3	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	93.5	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	86.1	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	85.6	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	81.3	61	131	
EP074B: Oxygenated Compounds (QCLot: 3207925)									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	90.3	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	130	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	129	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	132	54	136	
		5	mg/kg	<5	----	----	----	----	
EP074C: Sulfonated Compounds (QCLot: 3207925)									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	64.2	54	126	
EP074D: Fumigants (QCLot: 3207925)									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	82.0	55	133	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074D: Fumigants (QCLot: 3207925) - continued									
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	93.5	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	79.7	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	76.7	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	108	66	126	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3207925)									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	49.0	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	67.1	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	66.9	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	56.2	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	72.7	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	71.3	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	82.5	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	71.7	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	84.8	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	89.2	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	92.4	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	84.3	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	88.0	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	66.8	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	97.7	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	90.3	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	101	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	109	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	104	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	92.0	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	95.7	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	91.3	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	100	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	114	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	106	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	89.0	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	118	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	65.4	48	136	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074F: Halogenated Aromatic Compounds (QCLot: 3207925)									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	89.9	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	92.3	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	86.8	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	87.3	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	88.6	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	90.1	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	90.9	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	75.7	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	77.3	60	132	
EP074G: Trihalomethanes (QCLot: 3207925)									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	89.1	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	93.5	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	96.8	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	110	60	126	
EP074H: Naphthalene (QCLot: 3207925)									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	84.3	63	133	
		5	mg/kg	<5	----	----	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3208603)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	110	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	106	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	104	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	110	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	77.4	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	88.5	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	85.4	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	87.7	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	87.1	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	75.3	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	74.3	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	54.6	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3208603)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	99.5	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	99.4	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	98.3	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	94.9	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	101	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	101	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	104	79	123	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3208603) - continued									
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	105	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	99.9	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	103	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	91.2	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	89.5	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	96.6	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	75.9	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	81.8	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	77.5	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207924)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	92.8	68.4	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207968)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	93.1	68.4	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3208602)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	100	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	102	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	87.0	64	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207924)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	92.8	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207968)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	93.1	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208602)									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	96.4	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	98.4	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	71.4	63	131	
EP080: BTEXN (QCLot: 3207924)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	100	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	91.9	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	92.8	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	89.0	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	96.5	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	96.8	62	138	
EP080: BTEXN (QCLot: 3207968)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	91.3	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	95.0	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	93.9	58	118	



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High
EP080: BTEXN (QCLot: 3207968) - continued								
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	92.4	60	120
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	96.4	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	92.8	62	138

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%) Low High	
EG005T: Total Metals by ICP-AES (QCLot: 3210767)							
ES1326949-008	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	117	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	105	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	# 63.3	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	# 53.5	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	# Not Determined	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	# Not Determined	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3210766)							
ES1326978-002	BM_SB02_0.9	EG035T: Mercury	7439-97-6	5 mg/kg	129	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3208625)							
ES1326974-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	107	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3207925)							
ES1326975-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	77.7	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	89.5	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3207925)							
ES1326975-002	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	90.4	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3208603)							
ES1326914-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	110	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	104	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	88.0	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	90.5	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	61.6	20	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3208603)								
ES1326914-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	94.6	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	106	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207924)								
ES1326975-002	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	90.2	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207968)								
ES1326978-002	BM_SB02_0.9	EP080: C6 - C9 Fraction	----	32.5 mg/kg	112	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3208602)								
ES1326914-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	86.8	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	85.7	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	69.8	52	132	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207924)								
ES1326975-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	91.2	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207968)								
ES1326978-002	BM_SB02_0.9	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	110	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208602)								
ES1326914-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	110	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	76.4	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	59.4	52	132	
EP080: BTEXN (QCLot: 3207924)								
ES1326975-002	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	96.1	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	92.2	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	95.7	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	93.8	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	99.3	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	85.7	70	130		
EP080: BTEXN (QCLot: 3207968)								
ES1326978-002	BM_SB02_0.9	EP080: Benzene	71-43-2	2.5 mg/kg	90.9	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	98.4	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	96.8	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	95.2	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	99.2	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	94.0	70	130		



The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

						Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207924)											
ES1326975-002	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	90.2	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207924)											
ES1326975-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	91.2	----	70	130	----	----	
EP080: BTEXN (QCLot: 3207924)											
ES1326975-002	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	96.1	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	92.2	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	95.7	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	93.8	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	99.3	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	85.7	----	70	130	----	----	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3207925)											
ES1326975-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	77.7	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	89.5	----	70	130	----	----	
EP074F: Halogenated Aromatic Compounds (QCLot: 3207925)											
ES1326975-002	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	90.4	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207968)											
ES1326978-002	BM_SB02_0.9	EP080: C6 - C9 Fraction	----	32.5 mg/kg	112	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207968)											
ES1326978-002	BM_SB02_0.9	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	110	----	70	130	----	----	
EP080: BTEXN (QCLot: 3207968)											
ES1326978-002	BM_SB02_0.9	EP080: Benzene	71-43-2	2.5 mg/kg	90.9	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	98.4	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	96.8	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	95.2	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	99.2	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	94.0	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3208602)											
ES1326914-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	86.8	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	85.7	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	69.8	----	52	132	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208602)											
ES1326914-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	110	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	76.4	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	59.4	----	52	132	----	----	



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP075(SIM)A: Phenolic Compounds (QCLot: 3208603)										
ES1326914-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	110	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	104	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	88.0	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	90.5	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	61.6	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3208603)										
ES1326914-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	94.6	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	106	----	70	130	----	----
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3208625)										
ES1326974-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	107	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3210766)										
ES1326978-002	BM_SB02_0.9	EG035T: Mercury	7439-97-6	5 mg/kg	129	----	70	130	----	----
EG005T: Total Metals by ICP-AES (QCLot: 3210767)										
ES1326949-008	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	117	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	105	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	# 63.3	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	# 53.5	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	# Not Determined	----	70	130	----	----
		EG005T: Zinc	7440-66-6	250 mg/kg	# Not Determined	----	70	130	----	----



INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326978	Page	: 1 of 9
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: 0224193 SYMPHONY	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 10-DEC-2013
C-O-C number	: 11740	Issue Date	: 16-DEC-2013
Sampler	: G.P	No. of samples received	: 15
Order number	: ----	No. of samples analysed	: 13
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA055: Moisture Content								
Soil Glass Jar - Unpreserved (EA055-103)								
BM_SB01_2.5, BM_SB03_1.7, BM_SB05_1.8, BM_SB07_1.6, BM_SB08_4.6	BM_SB02_0.9, BM_SB04_1.3, BM_SB06_1.8, BM_MW04_1.6, BM_SB09_3.0	05-DEC-2013	----	----	----	12-DEC-2013	19-DEC-2013	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
BM_SB01_2.5, BM_SB03_1.7, BM_SB05_1.8, BM_SB07_1.6, BM_SB08_4.6	BM_SB02_0.9, BM_SB04_1.3, BM_SB06_1.8, BM_MW04_1.6, BM_SB09_3.0	05-DEC-2013	13-DEC-2013	03-JUN-2014	✓	13-DEC-2013	03-JUN-2014	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
BM_SB01_2.5, BM_SB03_1.7, BM_SB05_1.8, BM_SB07_1.6, BM_SB08_4.6	BM_SB02_0.9, BM_SB04_1.3, BM_SB06_1.8, BM_MW04_1.6, BM_SB09_3.0	05-DEC-2013	13-DEC-2013	02-JAN-2014	✓	13-DEC-2013	02-JAN-2014	✓
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066)								
BM_SB01_2.5		05-DEC-2013	12-DEC-2013	19-DEC-2013	✓	13-DEC-2013	21-JAN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Soil Glass Jar - Unpreserved (EP071)								
BM_SB01_2.5, BM_SB03_1.7, BM_SB05_1.8, BM_SB07_1.6, BM_SB08_4.6	BM_SB02_0.9, BM_SB04_1.3, BM_SB06_1.8, BM_MW04_1.6, BM_SB09_3.0	05-DEC-2013	13-DEC-2013	19-DEC-2013	✓	13-DEC-2013	22-JAN-2014	✓



Matrix: **SOIL** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074) BM_SB01_2.5	05-DEC-2013	12-DEC-2013	12-DEC-2013	✓	13-DEC-2013	12-DEC-2013	*
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074) BM_SB01_2.5	05-DEC-2013	12-DEC-2013	12-DEC-2013	✓	13-DEC-2013	12-DEC-2013	*
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074) BM_SB01_2.5	05-DEC-2013	12-DEC-2013	12-DEC-2013	✓	13-DEC-2013	12-DEC-2013	*
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074) BM_SB01_2.5	05-DEC-2013	12-DEC-2013	12-DEC-2013	✓	13-DEC-2013	12-DEC-2013	*
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074) BM_SB01_2.5	05-DEC-2013	12-DEC-2013	12-DEC-2013	✓	13-DEC-2013	12-DEC-2013	*
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074) BM_SB01_2.5	05-DEC-2013	12-DEC-2013	12-DEC-2013	✓	13-DEC-2013	12-DEC-2013	*
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved (EP074) BM_SB01_2.5	05-DEC-2013	12-DEC-2013	12-DEC-2013	✓	13-DEC-2013	12-DEC-2013	*
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074) BM_SB01_2.5	05-DEC-2013	12-DEC-2013	12-DEC-2013	✓	13-DEC-2013	12-DEC-2013	*
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) BM_SB01_2.5, BM_SB03_1.7, BM_SB05_1.8, BM_SB07_1.6, BM_SB08_4.6, BM_SB02_0.9, BM_SB04_1.3, BM_SB06_1.8, BM_MW04_1.6, BM_SB09_3.0	05-DEC-2013	13-DEC-2013	19-DEC-2013	✓	13-DEC-2013	22-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) BM_SB01_2.5, BM_SB03_1.7, BM_SB05_1.8, BM_SB07_1.6, BM_SB08_4.6, BM_SB02_0.9, BM_SB04_1.3, BM_SB06_1.8, BM_MW04_1.6, BM_SB09_3.0	05-DEC-2013	13-DEC-2013	19-DEC-2013	✓	13-DEC-2013	22-JAN-2014	✓



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) BM_SB01_2.5, BM_SB03_1.7, BM_SB05_1.8, BM_SB07_1.6, BM_SB08_4.6	BM_SB02_0.9, BM_SB04_1.3, BM_SB06_1.8, BM_MW04_1.6, BM_SB09_3.0	05-DEC-2013	12-DEC-2013	19-DEC-2013	✔	13-DEC-2013	19-DEC-2013	✔
Soil Glass Jar - Unpreserved (EP080) TRIP SPIKE, TSC 8	TRIP BLANK,	25-NOV-2013	12-DEC-2013	09-DEC-2013	✖	13-DEC-2013	09-DEC-2013	✖
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080) BM_SB01_2.5, BM_SB03_1.7, BM_SB05_1.8, BM_SB07_1.6, BM_SB08_4.6	BM_SB02_0.9, BM_SB04_1.3, BM_SB06_1.8, BM_MW04_1.6, BM_SB09_3.0	05-DEC-2013	12-DEC-2013	19-DEC-2013	✔	13-DEC-2013	19-DEC-2013	✔
Soil Glass Jar - Unpreserved (EP080) TRIP SPIKE, TSC 8	TRIP BLANK,	25-NOV-2013	12-DEC-2013	09-DEC-2013	✖	13-DEC-2013	09-DEC-2013	✖



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	13	15.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na ₂ SO ₄ and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.





Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	ES1326949-008	Anonymous	Copper	7440-50-8	63.3 %	70-130%	Recovery less than lower data quality objective
EG005T: Total Metals by ICP-AES	ES1326949-008	Anonymous	Lead	7439-92-1	53.5 %	70-130%	Recovery less than lower data quality objective
EG005T: Total Metals by ICP-AES	ES1326949-008	Anonymous	Nickel	7440-02-0	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG005T: Total Metals by ICP-AES	ES1326949-008	Anonymous	Zinc	7440-66-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: **SOIL**

Method Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP074A: Monocyclic Aromatic Hydrocarbons						
Soil Glass Jar - Unpreserved BM_SB01_2.5	----	----	----	13-DEC-2013	12-DEC-2013	1
EP074B: Oxygenated Compounds						
Soil Glass Jar - Unpreserved BM_SB01_2.5	----	----	----	13-DEC-2013	12-DEC-2013	1
EP074C: Sulfonated Compounds						
Soil Glass Jar - Unpreserved BM_SB01_2.5	----	----	----	13-DEC-2013	12-DEC-2013	1



Matrix: **SOIL**

Method Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP074D: Fumigants						
Soil Glass Jar - Unpreserved BM_SB01_2.5	----	----	----	13-DEC-2013	12-DEC-2013	1
EP074E: Halogenated Aliphatic Compounds						
Soil Glass Jar - Unpreserved BM_SB01_2.5	----	----	----	13-DEC-2013	12-DEC-2013	1
EP074F: Halogenated Aromatic Compounds						
Soil Glass Jar - Unpreserved BM_SB01_2.5	----	----	----	13-DEC-2013	12-DEC-2013	1
EP074G: Trihalomethanes						
Soil Glass Jar - Unpreserved BM_SB01_2.5	----	----	----	13-DEC-2013	12-DEC-2013	1
EP074H: Naphthalene						
Soil Glass Jar - Unpreserved BM_SB01_2.5	----	----	----	13-DEC-2013	12-DEC-2013	1
EP080/071: Total Petroleum Hydrocarbons						
Soil Glass Jar - Unpreserved TRIP SPIKE, TRIP BLANK, TSC 8	12-DEC-2013	09-DEC-2013	3	13-DEC-2013	09-DEC-2013	4
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013						
Soil Glass Jar - Unpreserved TRIP SPIKE, TRIP BLANK, TSC 8	12-DEC-2013	09-DEC-2013	3	13-DEC-2013	09-DEC-2013	4
EP080: BTEXN						
Soil Glass Jar - Unpreserved TRIP SPIKE, TRIP BLANK, TSC 8	12-DEC-2013	09-DEC-2013	3	13-DEC-2013	09-DEC-2013	4

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

13.12.13



CHAIN OF CUSTODY

ALS Laboratory
Private Bag 9

ANALYST: 2118, Initials: P. V. S. G. P.
No. of test bottles: 20
No. of test bottles: 20
No. of test bottles: 20
No. of test bottles: 20

DATE: 28/11/13
TIME: 14:30
ANALYST: P. V. S. G. P.
No. of test bottles: 20
No. of test bottles: 20
No. of test bottles: 20
No. of test bottles: 20

ANALYST: P. V. S. G. P.
No. of test bottles: 20
No. of test bottles: 20
No. of test bottles: 20
No. of test bottles: 20

ANALYST: P. V. S. G. P.
No. of test bottles: 20
No. of test bottles: 20
No. of test bottles: 20
No. of test bottles: 20

CLIENT: ERM	TURNOURROUND REQUIREMENTS: <input checked="" type="checkbox"/> Standard TAT (last date date)	FOR LABORATORY USE ONLY (Circle)	
OFFICE: Sydney	Standard TAT may be longer for some tests. <input type="checkbox"/> Non Standard or urgent TAT (last date date)	Yes	No
PROJECT: Project Symphony	ALS QUOTE NO.: SYB04/13	COC SEQUENCE NUMBER (Circle)	1 2 3 4 5 6 7
ORDER NUMBER: 0724193	CONTACT PH: BAYSWATER LUDDELL	Received By:	DATE/TIME: 10/12/13 1430
PROJECT MANAGER: Joe Ferrings	RELINQUISHED BY: er	Received By:	DATE/TIME: 10/12/13 1700
SAMPLER: Gavin Powell / Howard Campbell	RELINQUISHED BY: er	Received By:	DATE/TIME: 10/12/13 1900
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):		
Email Reports to (will default to PM if no other addresses are listed):	DATE/TIME:		
Email Invoice to (will default to PM if no other addresses are listed):	DATE/TIME:		
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:			

ALS USE	SAMPLE DETAILS MATRIX SOLID (S) WATER (W)	CONTAINER INFORMATION	ANALYSIS REQUIRED (including SUITES (NS, Suite Codes must be listed to strict state price) Where Results are required, specify Total (unfiltered) bottles required) or Dissolved (filtered) bottles required)	Additional Information												
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	refer to	TOTAL CONTAINERS	S-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (Ag, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, Ti, B, Mo, Tl, Se)	S-24 TRH (C6-C40) (BTEXN, PAH, Phenols)	VOC Target Scan	PH (1-5) ER/CEC	Exchangeable cations (ED007)	Asbestos (absent/presence)	Particle Sizing to 25µm (Sieve)	Organic Matter plus Total Organic Carbon (EPC04)	Comments on likely contaminant levels, dilutions, or sample requiring specific analysis etc.
1	BA_MW02-0.5		soil	15, 18	2	X	X	X	X							Lab / Analysis: BA_MW02-2.1 Forwarded to ENV120LAB
2	BA_MW05-1.8			18	1	X	X	X	X							Organised By / Date: JD ENV120LAB
3	BA_MW05-2.5			15	1	X	X	X	X							Relinquished By / Date:
4	BA_MW05-3-0			18	1	X	X	X	X							Connote / Courier:
5	BA_MW05-3-8			15	1	X	X	X	X							WO No: ES1326990
6	BA_MW05-3-8			15	1	X	X	X	X							Attach By PO Internal Sheet:
7	BA_MW02-2.1			15, 18	2	X	X	X	X							To Enviro Lab
8	BA_MW02-3-0			15	1	X	X	X	X							
9	Trip Spikes	28/11/13		15	1	X	X	X	X							
10	Trip Blank	no date		15	1	X	X	X	X							
11	BA1_031213_CP			4	4	X	X	X	X							
12	TSC4	28/11/13		4	4	X	X	X	X							

Matrix Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; CR6 = Nitric Preserved Plastic; SH = Sodium Hydroxide Preserved Plastic; AD = Amber Glass Unpreserved; AN = Autoclave Unpreserved Plastic
 V = VOA Vol ICH Preserved; V9 = VOA Vol ICH Unpreserved; VS = VOA Vol ICH Unpreserved; VSI = VOA Vol ICH Unpreserved; VSI2 = VOA Vol ICH Unpreserved; VSI3 = VOA Vol ICH Unpreserved; VSI4 = VOA Vol ICH Unpreserved
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; SF = Single Bottle; ASB = Plastic Bottle for Acid Soluble Solids; B = Unpreserved Bin

BA_MW02-2.0 received

Environmental Division
 Sydney
 Work Order
ES1326990

Telephone: +61-2-8784 8555

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: ES1326990		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact Address	: MR JOSEPH FERRING GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Contact Address	: Barbara Hanna 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: PROJECT SYMPHONY	Page	: 1 of 3
Order number	: ----		
C-O-C number	: ----	Quote number	: ES2013ENVRES0369 (SY/794/13)
Site	: BAYSWATER/LIDDELL		
Sampler	: G.P/H.C	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 10-DEC-2013	Issue Date : 11-DEC-2013 14:50
Client Requested Due Date : 13-DEC-2013	Scheduled Reporting Date : 13-DEC-2013

Delivery Details

Mode of Delivery : Carrier	Temperature : 5' C SYD - Ice present
No. of coolers/boxes : 1 HARD	No. of samples received : 12
Security Seal : Intact.	No. of samples analysed : 9

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Sample containers do not comply to pretreatment / preservation standards (AS, APHA, USEPA). Please refer to the Sample Container(s)/Preservation Non-Compliance Log at the end of this report for details.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample T01_031213_GP to be forwarded to Envirolab.**
- **Sample BA_MW02_2.1 on COC was received labelled BA_MW02_2.0 on the jar.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Method	Sample Container Received	Preferred Sample Container for Analysis
EP071 : TPH - Semivolatile Fraction		
B0_MW05_1.8	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
EP075(SIM) : PAH/Phenols (SIM)		
B0_MW05_1.8	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
EP080 : TPH Volatiles/BTEX		
B0_MW05_1.8	- Snap Lock Bag	- Soil Glass Jar - Unpreserved

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES1326990-007 : 10-DEC-2013 15:00 : BA_MW02_2.1 - BA_MW02_2.0

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL	No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA032 Electrical Conductivity (Saturated Paste)	SOIL - ED007 CEC / Exchangeable Cations (ED007)-All	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-24 TRH/BTEXN/PAH + Phenols
ES1326990-001	10-DEC-2013 15:00	BA_MW02_0.5		✓	✓	✓	✓	✓			✓
ES1326990-002	10-DEC-2013 15:00	B0_MW05_1.8		✓	✓	✓	✓	✓			✓
ES1326990-003	10-DEC-2013 15:00	B0_MW05_2.5		✓	✓	✓	✓	✓			✓
ES1326990-004	10-DEC-2013 15:00	B0_MW05_3.0	✓								
ES1326990-005	10-DEC-2013 15:00	B0_MW05_3.8	✓								
ES1326990-006	10-DEC-2013 15:00	D01_031213_GP						✓	✓		✓
ES1326990-007	10-DEC-2013 15:00	BA_MW02_2.1 BA_MW02		✓	✓	✓	✓	✓	✓		✓
ES1326990-008	10-DEC-2013 15:00	BA_MW02_3.0	✓								
ES1326990-009	10-DEC-2013 15:00	TRIP SPIKE								✓	
ES1326990-010	10-DEC-2013 15:00	TRIP BLANK								✓	
ES1326990-012	28-NOV-2013 15:00	TSC4								✓	

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020A-T Total Metals by ICPMS - Suite A	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1326990-011	10-DEC-2013 15:00	R01_031213_GP	✓	✓	✓



Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA)	Email	joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	joseph.ferring@erm.com
- Chain of Custody (CoC) (COC)	Email	joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	joseph.ferring@erm.com
- EDI Format - XTab (XTAB)	Email	joseph.ferring@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
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CERTIFICATE OF ANALYSIS

Work Order : ES1326990 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : PROJECT SYMPHONY Order number : ---- C-O-C number : ---- Sampler : G.P/H.C Site : BAYSWATER/LIDDELL Quote number : SY/794/13	Page : 1 of 11 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 10-DEC-2013 Issue Date : 16-DEC-2013 No. of samples received : 12 No. of samples analysed : 9
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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EG005T: Poor precision was obtained for Barium on sample ES1327003 #002. Results have been confirmed by re-extraction and reanalysis.**
- **EG005T: Poor precision was obtained for Manganese on sample EM1312869 #002. Results have been confirmed by re-extraction and reanalysis.**
- **EG020: Positive results for sample ES1326990 # 11 confirmed.**
- **EP080: The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch. RESULTS HAVE BEEN CONFIRMED BY RE-EXTRACTION AND RE-ANALYSIS.**



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BA_MW02_0.5	B0_MW05_1.8	B0_MW05_2.5	D01_031213_GP	BA_MW02_2.1 BA_MW02_2.0
				10-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326990-001	ES1326990-002	ES1326990-003	ES1326990-006	ES1326990-007
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	7.6	8.2	7.8	----	4.6
EA032: Electrical Conductivity (saturated paste)								
Electrical Conductivity (Saturated Paste)	----	1	µS/cm	1700	1190	1400	----	1130
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	17.6	12.6	18.5	17.7	15.0
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	0.2	<0.1	0.2	----	<0.1
Exchangeable Magnesium	----	0.1	meq/100g	<0.1	<0.1	0.2	----	<0.1
Exchangeable Potassium	----	0.1	meq/100g	0.2	<0.1	0.2	----	<0.1
Exchangeable Sodium	----	0.1	meq/100g	9.6	<0.1	12.2	----	<0.1
Cation Exchange Capacity	----	0.1	meq/100g	10.1	0.2	12.7	----	0.2
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	<0.1	----	<0.1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	18	50	29	39	8
Barium	7440-39-3	10	mg/kg	210	220	250	200	220
Beryllium	7440-41-7	1	mg/kg	1	2	2	2	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	20	39	24	31	9
Cobalt	7440-48-4	2	mg/kg	3	46	23	20	3
Copper	7440-50-8	5	mg/kg	24	40	30	32	12
Lead	7439-92-1	5	mg/kg	21	59	34	36	12
Manganese	7439-96-5	5	mg/kg	38	1500	920	845	23
Molybdenum	7439-98-7	2	mg/kg	<2	4	3	3	<2
Nickel	7440-02-0	2	mg/kg	14	49	34	34	7
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	77	132	81	105	20
Zinc	7440-66-6	5	mg/kg	64	134	117	108	185
Thallium	7440-28-0	5	mg/kg	<5	<5	<5	<5	<5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BA_MW02_0.5	B0_MW05_1.8	B0_MW05_2.5	D01_031213_GP	BA_MW02_2.1 BA_MW02_2.0
				10-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326990-001	ES1326990-002	ES1326990-003	ES1326990-006	ES1326990-007
EP075(SIM)A: Phenolic Compounds - Continued								
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BA_MW02_0.5	B0_MW05_1.8	B0_MW05_2.5	D01_031213_GP	BA_MW02_2.1 BA_MW02_2.0
				10-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326990-001	ES1326990-002	ES1326990-003	ES1326990-006	ES1326990-007
EP080/071: Total Petroleum Hydrocarbons - Continued								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	98.2	101	96.2	105	105
2-Chlorophenol-D4	93951-73-6	0.1	%	101	95.9	97.4	105	106
2,4,6-Tribromophenol	118-79-6	0.1	%	75.0	66.4	63.3	66.1	67.0
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	108	106	102	107	105
Anthracene-d10	1719-06-8	0.1	%	93.6	92.7	90.2	91.8	94.0
4-Terphenyl-d14	1718-51-0	0.1	%	83.6	81.0	79.1	81.8	82.0
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	82.3	86.5	79.3	78.8	81.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	BA_MW02_0.5	B0_MW05_1.8	B0_MW05_2.5	D01_031213_GP	BA_MW02_2.1 BA_MW02_2.0
Client sampling date / time	10-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00
Compound	ES1326990-001	ES1326990-002	ES1326990-003	ES1326990-006	ES1326990-007

Client sampling date / time

Compound	CAS Number	LOR	Unit	ES1326990-001	ES1326990-002	ES1326990-003	ES1326990-006	ES1326990-007
EP080S: TPH(V)/BTEX Surrogates - Continued								
Toluene-D8	2037-26-5	0.1	%	87.4	87.6	87.6	84.1	89.2
4-Bromofluorobenzene	460-00-4	0.1	%	89.9	92.5	85.6	86.6	91.9



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TRIP SPIKE	TRIP BLANK	TSC4	----	----
				10-DEC-2013 15:00	10-DEC-2013 15:00	28-NOV-2013 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1326990-009	ES1326990-010	ES1326990-012	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	28	<10	102	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	33	<10	118	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	21	<10	62	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	0.2	<0.2	1.1	----	----
Toluene	108-88-3	0.5	mg/kg	6.0	<0.5	32.8	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	0.7	<0.5	2.8	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	3.7	<0.5	13.8	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	1.5	<0.5	5.5	----	----
^ Sum of BTEX	----	0.2	mg/kg	12.1	<0.2	56.0	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	5.2	<0.5	19.3	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	82.0	84.9	85.4	----	----
Toluene-D8	2037-26-5	0.1	%	81.1	88.4	83.5	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	87.0	92.1	86.7	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_031213_GP

Client sampling date / time

10-DEC-2013 15:00

Compound CAS Number LOR Unit

ES1326990-011

EG020T: Total Metals by ICP-MS

Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Boron	7440-42-8	0.05	mg/L	<0.05	---	---	---	---
Barium	7440-39-3	0.001	mg/L	<0.001	---	---	---	---
Beryllium	7440-41-7	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Cobalt	7440-48-4	0.001	mg/L	<0.001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	0.002	---	---	---	---
Manganese	7439-96-5	0.001	mg/L	<0.001	---	---	---	---
Molybdenum	7439-98-7	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Selenium	7782-49-2	0.01	mg/L	<0.01	---	---	---	---
Thallium	7440-28-0	0.001	mg/L	<0.001	---	---	---	---
Vanadium	7440-62-2	0.01	mg/L	<0.01	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---

EG035T: Total Recoverable Mercury by FIMS

Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
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EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---

EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
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Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_031213_GP

Client sampling date / time

10-DEC-2013 15:00

ES1326990-011

Compound	CAS Number	LOR	Unit					
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	---	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---	---
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	---	---	---	---

EP080: BTEXN



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_031213_GP

Client sampling date / time

10-DEC-2013 15:00

Compound	CAS Number	LOR	Unit	ES1326990-011	----	----	----	----
EP080: BTEXN - Continued								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	29.5	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	68.4	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	71.8	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	74.6	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	61.3	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	56.6	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	90.7	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	84.7	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	83.5	----	----	----	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: ES1326990	Page	: 1 of 17
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: PROJECT SYMPHONY	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER/LIDDELL	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: G.P/H.C	No. of samples received	: 12
Order number	: ----	No. of samples analysed	: 9
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited
Laboratory 825

Accredited for
compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC



Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA002 : pH (Soils) (QC Lot: 3207879)									
ES1326928-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	4.7	4.7	0.0	0% - 20%
ES1326941-011	Anonymous	EA002: pH Value	----	0.1	pH Unit	5.3	5.4	1.9	0% - 20%
EA032: Electrical Conductivity (saturated paste) (QC Lot: 3211015)									
ES1326990-001	BA_MW02_0.5	EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	1700	1700	0.3	0% - 20%
EA055: Moisture Content (QC Lot: 3208019)									
ES1326962-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	7.5	6.7	10.4	No Limit
ES1327006-011	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	18.4	16.0	13.7	0% - 50%
ED007: Exchangeable Cations (QC Lot: 3208780)									
ES1326990-001	BA_MW02_0.5	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.2	0.2	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	0.1	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	9.6	9.6	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	10.1	10.1	0.0	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 3208656)									
EM1312869-002	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	4	2	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	3	3	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	3	2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	7	40.4	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	81	50	46.8	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	15	14	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	313	255	# 20.6	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	7	7	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	140	120	15.0	0% - 20%
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
ES1326773-012	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	60	60	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	4	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005T: Total Metals by ICP-AES (QC Lot: 3208656) - continued									
ES1326773-012	Anonymous	EG005T: Cobalt	7440-48-4	2	mg/kg	12	10	21.3	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	31	31	0.0	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	9	<5	56.9	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	21	13	47.1	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	21	27	24.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	223	222	0.6	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	22	10	73.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	92	66	32.6	0% - 50%
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
EG005T: Total Metals by ICP-AES (QC Lot: 3208661)									
ES1326990-007	BA_MW02_2.1 BA_MW02_2.0	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	4	128	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	9	17	64.9	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	7	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	12	21	53.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	12	13	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	20	26	25.2	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
ES1327003-002	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	1	1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	20	17	17.0	0% - 50%
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	14	14	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	6	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	9	23.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	36	31	15.7	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3208660)									
ES1326773-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.1	0.0	No Limit
ES1326773-012	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3207889)									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3207889) - continued									
ES1326990-001	BA_MW02_0.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3207889)									
ES1326990-001	BA_MW02_0.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3207888)									
ES1326990-001	BA_MW02_0.5	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3207893)									
ES1326962-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1326990-007	BA_MW02_2.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
	BA_MW02_2.0								



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3207888)									
ES1326990-001	BA_MW02_0.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3207893)									
ES1326962-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1326990-007	BA_MW02_2.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
	BA_MW02_2.0								
EP080: BTEXN (QC Lot: 3207893)									
ES1326962-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit		
ES1326990-007	BA_MW02_2.1 BA_MW02_2.0	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit		
Sub-Matrix: WATER									
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 3210165)									
ES1326535-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0010	<0.0010	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.094	0.091	3.8	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.070	0.017	122	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	1.45	1.48	1.7	0% - 20%
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.050	<0.050	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.10	<0.10	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EG020T: Total Metals by ICP-MS (QC Lot: 3210165) - continued										
ES1326535-001	Anonymous	EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.10	<0.10	0.0	No Limit	
		EG020A-T: Boron	7440-42-8	0.05	mg/L	2.94	2.93	0.0	No Limit	
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3207847)										
ES1325672-002	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3207923)										
ES1326561-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1326561-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3207923)										
ES1326561-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1326561-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
EP080: BTEXN (QC Lot: 3207923)										
ES1326561-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1326561-003	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
	EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit		
	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit		



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EA032: Electrical Conductivity (saturated paste) (QCLot: 3211015)									
EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	<1	1412 µS/cm	100	96	104	
ED007: Exchangeable Cations (QCLot: 3208780)									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3208656)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	101	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	103	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	108	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	99.2	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	95.9	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	97.4	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	106	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	101	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	110	85	127	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	111	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	108	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	100	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	107	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	113	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	----	----	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3208661)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	106	87	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	111	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	101	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	101	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	107	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	107	81	123	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	110	70	130	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EG005T: Total Metals by ICP-AES (QCLot: 3208661) - continued									
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	95.1	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	109	95	129	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	----	----	----	----	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3208660)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	74.7	66	112	
EP075(SIM)A: Phenolic Compounds (QCLot: 3207889)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	100	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	102	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	98.4	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	101	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	82.1	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	100	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	93.6	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	96.6	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	86.0	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	85.5	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	84.8	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	24.7	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3207889)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	91.2	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	93.9	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	84.0	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	83.6	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	95.7	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	95.5	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	93.3	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	96.0	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	78.3	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	91.4	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	78.0	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	99.2	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	102	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	93.4	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	87.1	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	93.8	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207888)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	96.8	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	94.1	74	138	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207888) - continued									
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	90.6	64	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207893)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	109	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207888)									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	92.0	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	94.5	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	88.6	63	131	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207893)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	108	68.4	128	
EP080: BTEXN (QCLot: 3207893)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	112	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	110	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	106	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	111	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	109	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	94.4	62	138	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EG020T: Total Metals by ICP-MS (QCLot: 3210165)									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	100	79	121	
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	94.4	76	120	
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	99.9	84	116	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.6	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	94.9	83	115	
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	95.3	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	115	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	105	85	115	
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	91.7	83	115	
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	104	81	125	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.0	83	117	
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	102	68	128	
EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	106	86	116	
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	91.8	84	114	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	92.6	76	118	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	110	73	127	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)	Recovery Limits (%)	
					Concentration	LCS	Low	High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3207847)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	86.5	77	115
EP075(SIM)A: Phenolic Compounds (QCLot: 3208623)								
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	20 µg/L	39.9	24.5	61.9
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	20 µg/L	84.4	63.8	110
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	20 µg/L	84.6	55.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	40 µg/L	74.2	42.5	114
		2	µg/L	<2.0	----	----	----	----
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	20 µg/L	85.8	62.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.2	µg/L	----	20 µg/L	88.6	59.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.2	µg/L	----	20 µg/L	93.7	59.3	122
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.2	µg/L	----	20 µg/L	94.0	64.3	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	20 µg/L	85.1	63	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.2	µg/L	----	20 µg/L	83.9	58.7	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.2	µg/L	----	20 µg/L	84.8	50	108
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	40 µg/L	29.7	8.7	95
		2	µg/L	<2.0	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3208623)								
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	20 µg/L	93.9	58.6	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	20 µg/L	98.6	63.6	114
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	20 µg/L	98.4	62.2	113
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	20 µg/L	103	63.9	115
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	20 µg/L	110	62.6	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	20 µg/L	104	64.3	116
		1	µg/L	<1.0	----	----	----	----



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3208623) - continued									
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	20 µg/L	96.5	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	20 µg/L	87.5	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	20 µg/L	104	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	20 µg/L	103	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	20 µg/L	98.9	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	20 µg/L	105	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	20 µg/L	97.8	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	20 µg/L	102	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	20 µg/L	107	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	20 µg/L	89.6	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207923)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	97.5	75	127	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3208622)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	90.4	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	107	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	76.1	62	120	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207923)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	95.6	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208622)									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	85.4	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	101	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	72.0	67	127	
EP080: BTEXN (QCLot: 3207923)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	113	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	105	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	99.0	70	120	



Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High
EP080: BTEXN (QCLot: 3207923) - continued								
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	98.0	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	101	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	82.9	70	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
EG005T: Total Metals by ICP-AES (QCLot: 3208656)							
EM1312869-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	98.4	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	99.4	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	101	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	70.0	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	103	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	106	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	110	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	75.3	70	130
EG005T: Total Metals by ICP-AES (QCLot: 3208661)							
ES1326990-007	BA_MW02_2.1 BA_MW02_2.0	EG005T: Arsenic	7440-38-2	50 mg/kg	102	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.4	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	128	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	110	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	101	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	106	70	130
		EG035T: Total Recoverable Mercury by FIMS (QCLot: 3208660)					
ES1326773-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	79.9	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3207889)							
ES1326990-001	BA_MW02_0.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	118	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	119	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	94.8	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	95.8	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	38.9	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3207889)							
ES1326990-001	BA_MW02_0.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	116	70	130



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3207889) - continued								
ES1326990-001	BA_MW02_0.5	EP075(SIM): Pyrene	129-00-0	10 mg/kg	121	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207888)								
ES1326990-001	BA_MW02_0.5	EP071: C10 - C14 Fraction	----	640 mg/kg	75.8	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	98.0	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	78.0	52	132	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207893)								
ES1326962-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	122	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207888)								
ES1326990-001	BA_MW02_0.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	126	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	90.3	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	54.1	52	132	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207893)								
ES1326962-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	118	70	130	
EP080: BTEXN (QCLot: 3207893)								
ES1326962-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	114	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	110	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	107	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	108	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	110	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	109	70	130		

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 3210165)							
ES1326739-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	107	70	130
		EG020A-T: Beryllium	7440-41-7	1 mg/L	91.7	70	130
		EG020A-T: Barium	7440-39-3	1 mg/L	101	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	98.7	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	89.2	70	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	85.0	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	99.4	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	100	70	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	90.6	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	82.9	70	130
		EG020A-T: Vanadium	7440-62-2	1 mg/L	90.5	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	92.2	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3207847)								
ES1325672-003	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	93.4	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207923)								
ES1326561-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	127	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207923)								
ES1326561-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	70	130	
EP080: BTEXN (QCLot: 3207923)								
ES1326561-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	126	70	130	
		EP080: Toluene	108-88-3	25 µg/L	114	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	110	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	107	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	114	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	122	70	130		

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207888)										
ES1326990-001	BA_MW02_0.5	EP071: C10 - C14 Fraction	----	640 mg/kg	75.8	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	98.0	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	78.0	----	52	132	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207888)										
ES1326990-001	BA_MW02_0.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	126	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	90.3	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	54.1	----	52	132	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3207889)										
ES1326990-001	BA_MW02_0.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	118	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	119	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	94.8	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	95.8	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	38.9	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3207889)										
ES1326990-001	BA_MW02_0.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	116	----	70	130	----	----



Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3207889) - continued											
ES1326990-001	BA_MW02_0.5	EP075(SIM): Pyrene	129-00-0	10 mg/kg	121	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207893)											
ES1326962-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	122	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207893)											
ES1326962-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	118	----	70	130	----	----	
EP080: BTEXN (QCLot: 3207893)											
ES1326962-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	114	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	110	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	107	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	108	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	110	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	109	----	70	130	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3208656)											
EM1312869-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	98.4	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	99.4	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	101	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	70.0	----	70	130	----	----	
		EG005T: Lead	7439-92-1	125 mg/kg	103	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	106	----	70	130	----	----	
		EG005T: Selenium	7782-49-2	50 mg/kg	110	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	125 mg/kg	75.3	----	70	130	----	----	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3208660)											
ES1326773-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	79.9	----	70	130	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3208661)											
ES1326990-007	BA_MW02_2.1 BA_MW02_2.0	EG005T: Arsenic	7440-38-2	50 mg/kg	102	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.4	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	128	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	110	----	70	130	----	----	
		EG005T: Lead	7439-92-1	125 mg/kg	101	----	70	130	----	----	
		EG005T: Selenium	7782-49-2	50 mg/kg	106	----	70	130	----	----	

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3207847)										
ES1325672-003	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	93.4	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207923)										



Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207923) - continued											
ES1326561-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	127	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207923)											
ES1326561-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	----	70	130	----	----	
EP080: BTEXN (QCLot: 3207923)											
ES1326561-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	126	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	114	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	110	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	107	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	114	----	70	130	----	----	
	EP080: Naphthalene	91-20-3		25 µg/L	122	----	70	130	----	----	
EG020T: Total Metals by ICP-MS (QCLot: 3210165)											
ES1326739-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	107	----	70	130	----	----	
		EG020A-T: Beryllium	7440-41-7	1 mg/L	91.7	----	70	130	----	----	
		EG020A-T: Barium	7440-39-3	1 mg/L	101	----	70	130	----	----	
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	98.7	----	70	130	----	----	
		EG020A-T: Chromium	7440-47-3	1 mg/L	89.2	----	70	130	----	----	
		EG020A-T: Cobalt	7440-48-4	1 mg/L	85.0	----	70	130	----	----	
		EG020A-T: Copper	7440-50-8	1 mg/L	99.4	----	70	130	----	----	
		EG020A-T: Lead	7439-92-1	1 mg/L	100	----	70	130	----	----	
		EG020A-T: Manganese	7439-96-5	1 mg/L	90.6	----	70	130	----	----	
		EG020A-T: Nickel	7440-02-0	1 mg/L	82.9	----	70	130	----	----	
		EG020A-T: Vanadium	7440-62-2	1 mg/L	90.5	----	70	130	----	----	
		EG020A-T: Zinc	7440-66-6	1 mg/L	92.2	----	70	130	----	----	

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326990	Page	: 1 of 9
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: PROJECT SYMPHONY	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER/LIDDELL	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: G.P/H.C	No. of samples received	: 12
Order number	: ----	No. of samples analysed	: 9
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002 : pH (Soils)							
Snap Lock Bag (EA002) B0_MW05_1.8	10-DEC-2013	12-DEC-2013	17-DEC-2013	✓	12-DEC-2013	12-DEC-2013	✓
Soil Glass Jar - Unpreserved (EA002) BA_MW02_0.5, B0_MW05_2.5, BA_MW02_2.1 - BA_MW02_2.0	10-DEC-2013	12-DEC-2013	17-DEC-2013	✓	12-DEC-2013	12-DEC-2013	✓
EA032: Electrical Conductivity (saturated paste)							
Snap Lock Bag (EA032) B0_MW05_1.8	10-DEC-2013	----	----	----	13-DEC-2013	08-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA032) BA_MW02_0.5, B0_MW05_2.5, BA_MW02_2.1 - BA_MW02_2.0	10-DEC-2013	----	----	----	13-DEC-2013	08-JUN-2014	✓
EA055: Moisture Content							
Snap Lock Bag (EA055-103) B0_MW05_1.8	10-DEC-2013	----	----	----	12-DEC-2013	24-DEC-2013	✓
Soil Glass Jar - Unpreserved (EA055-103) BA_MW02_0.5, B0_MW05_2.5, D01_031213_GP, BA_MW02_2.1 - BA_MW02_2.0	10-DEC-2013	----	----	----	12-DEC-2013	24-DEC-2013	✓
ED007: Exchangeable Cations							
Snap Lock Bag (ED007) B0_MW05_1.8	10-DEC-2013	12-DEC-2013	07-JAN-2014	✓	13-DEC-2013	07-JAN-2014	✓
Soil Glass Jar - Unpreserved (ED007) BA_MW02_0.5, B0_MW05_2.5, BA_MW02_2.1 - BA_MW02_2.0	10-DEC-2013	12-DEC-2013	07-JAN-2014	✓	13-DEC-2013	07-JAN-2014	✓
EG005T: Total Metals by ICP-AES							
Snap Lock Bag (EG005T) B0_MW05_1.8	10-DEC-2013	12-DEC-2013	08-JUN-2014	✓	12-DEC-2013	08-JUN-2014	✓
Soil Glass Jar - Unpreserved (EG005T) BA_MW02_0.5, B0_MW05_2.5, D01_031213_GP, BA_MW02_2.1 - BA_MW02_2.0	10-DEC-2013	12-DEC-2013	08-JUN-2014	✓	12-DEC-2013	08-JUN-2014	✓



Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EG035T: Total Recoverable Mercury by FIMS								
Snap Lock Bag (EG035T) B0_MW05_1.8	10-DEC-2013	12-DEC-2013	07-JAN-2014	✓	13-DEC-2013	07-JAN-2014	✓	
Soil Glass Jar - Unpreserved (EG035T) BA_MW02_0.5, D01_031213_GP,	B0_MW05_2.5, BA_MW02_2.1 - BA_MW02_2.0	10-DEC-2013	12-DEC-2013	07-JAN-2014	✓	13-DEC-2013	07-JAN-2014	✓
EP080/071: Total Petroleum Hydrocarbons								
Snap Lock Bag (EP071) B0_MW05_1.8	10-DEC-2013	12-DEC-2013	24-DEC-2013	✓	12-DEC-2013	21-JAN-2014	✓	
Soil Glass Jar - Unpreserved (EP071) BA_MW02_0.5, D01_031213_GP,	B0_MW05_2.5, BA_MW02_2.1 - BA_MW02_2.0	10-DEC-2013	12-DEC-2013	24-DEC-2013	✓	12-DEC-2013	21-JAN-2014	✓
EP075(SIM)A: Phenolic Compounds								
Snap Lock Bag (EP075(SIM)) B0_MW05_1.8	10-DEC-2013	12-DEC-2013	24-DEC-2013	✓	12-DEC-2013	21-JAN-2014	✓	
Soil Glass Jar - Unpreserved (EP075(SIM)) BA_MW02_0.5, D01_031213_GP,	B0_MW05_2.5, BA_MW02_2.1 - BA_MW02_2.0	10-DEC-2013	12-DEC-2013	24-DEC-2013	✓	12-DEC-2013	21-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Snap Lock Bag (EP075(SIM)) B0_MW05_1.8	10-DEC-2013	12-DEC-2013	24-DEC-2013	✓	12-DEC-2013	21-JAN-2014	✓	
Soil Glass Jar - Unpreserved (EP075(SIM)) BA_MW02_0.5, D01_031213_GP,	B0_MW05_2.5, BA_MW02_2.1 - BA_MW02_2.0	10-DEC-2013	12-DEC-2013	24-DEC-2013	✓	12-DEC-2013	21-JAN-2014	✓
EP080: BTEXN								
Snap Lock Bag (EP080) B0_MW05_1.8	10-DEC-2013	12-DEC-2013	24-DEC-2013	✓	13-DEC-2013	24-DEC-2013	✓	
Soil Glass Jar - Unpreserved (EP080) BA_MW02_0.5, D01_031213_GP, TRIP SPIKE,	B0_MW05_2.5, BA_MW02_2.1 - BA_MW02_2.0, TRIP BLANK	10-DEC-2013	12-DEC-2013	24-DEC-2013	✓	13-DEC-2013	24-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) TSC4		28-NOV-2013	12-DEC-2013	12-DEC-2013	✓	13-DEC-2013	12-DEC-2013	*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Snap Lock Bag (EP080) B0_MW05_1.8	10-DEC-2013	12-DEC-2013	24-DEC-2013	✓	13-DEC-2013	24-DEC-2013	✓	
Soil Glass Jar - Unpreserved (EP080) BA_MW02_0.5, D01_031213_GP, TRIP SPIKE,	B0_MW05_2.5, BA_MW02_2.1 - BA_MW02_2.0, TRIP BLANK	10-DEC-2013	12-DEC-2013	24-DEC-2013	✓	13-DEC-2013	24-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) TSC4		28-NOV-2013	12-DEC-2013	12-DEC-2013	✓	13-DEC-2013	12-DEC-2013	*

Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_031213_GP	10-DEC-2013	13-DEC-2013	08-JUN-2014	✓	13-DEC-2013	08-JUN-2014	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_031213_GP	10-DEC-2013	----	----	----	12-DEC-2013	07-JAN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Amber Glass Bottle - Unpreserved (EP071) R01_031213_GP	10-DEC-2013	12-DEC-2013	17-DEC-2013	✓	12-DEC-2013	21-JAN-2014	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_031213_GP	10-DEC-2013	12-DEC-2013	17-DEC-2013	✓	13-DEC-2013	21-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_031213_GP	10-DEC-2013	12-DEC-2013	17-DEC-2013	✓	13-DEC-2013	21-JAN-2014	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) R01_031213_GP	10-DEC-2013	13-DEC-2013	24-DEC-2013	✓	13-DEC-2013	24-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Amber VOC Vial - Sulfuric Acid (EP080) R01_031213_GP	10-DEC-2013	13-DEC-2013	24-DEC-2013	✓	13-DEC-2013	24-DEC-2013	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Electrical Conductivity (Saturated Paste)	EA032	1	4	25.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	4	25.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	5	20.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	36	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	8	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Electrical Conductivity (Saturated Paste)	EA032	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	36	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Electrical Conductivity (Saturated Paste)	EA032	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	36	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	36	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							



Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP) - Continued							
Total Mercury by FIMS	EG035T	1	6	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	3	33.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Electrical Conductivity (Saturated Paste)	EA032	SOIL	USEPA 600/2 - 78 - 054 - conductivity determined on a saturated paste.
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)



Analytical Methods	Method	Matrix	Method Descriptions
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005T: Total Metals by ICP-AES	EM1312869-002	Anonymous	Manganese	7439-96-5	20.6 %	0-20%	RPD exceeds LOR based limits

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: **SOIL**

Method Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP080/071: Total Petroleum Hydrocarbons						
Soil Glass Jar - Unpreserved TSC4	----	----	----	13-DEC-2013	12-DEC-2013	1
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013						
Soil Glass Jar - Unpreserved TSC4	----	----	----	13-DEC-2013	12-DEC-2013	1
EP080: BTEXN						
Soil Glass Jar - Unpreserved TSC4	----	----	----	13-DEC-2013	12-DEC-2013	1

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

SAMPLE RECEIPT NOTIFICATION (SRN)**Comprehensive Report**

Work Order : **ES1326995**

Client : **ENVIRO RESOURCES MANAGEMENT** **Laboratory** : Environmental Division Sydney

Contact : MR JOSEPH FERRING **Contact** : Barbara Hanna
Address : GROUND FLOOR **Address** : 277-289 Woodpark Road Smithfield
33 SAUNDERS STREET, PYRMONT NSW Australia 2164
NSW 2009
LOCKED BAG 24
BROADWAY NSW, AUSTRALIA 2007

E-mail : joseph.ferring@erm.com **E-mail** : Barbara.Hanna@alsglobal.com
Telephone : +61 02 8584 8888 **Telephone** : +61 2 8784 8555
Facsimile : +61 02 8584 8800 **Facsimile** : +61 2 8784 8555

Project : Project Symphony **Page** : 1 of 2

Order number : ----
C-O-C number : ---- **Quote number** : ES2013ENVRES0369 (SY/794/13)
Site : ----
Sampler : TC **QC Level** : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 10-DEC-2013 **Issue Date** : 10-DEC-2013 20:48
Client Requested Due Date : 13-DEC-2013 **Scheduled Reporting Date** : **13-DEC-2013**

Delivery Details

Mode of Delivery : Carrier **Temperature** : 4.9°C - Ice present
No. of coolers/boxes : 1 HARD **No. of samples received** : 4
Security Seal : Intact. **No. of samples analysed** : 4

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA032 Electrical Conductivity (Saturated Paste)	SOIL - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP231 Perfluorooctyl Acids and Sulfonates by LC/MS/MS	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-24 TRH/BTEX/NIPAH + Phenols	SOIL - S-27 TRH/BTEX/NIPAH/Phenols/8Metals
ES1326995-001	[04-DEC-2013]	BQ_MW14_2.4	✓	✓		✓		✓	✓	
ES1326995-002	[04-DEC-2013]	BY_MW20_2.0				✓				✓
ES1326995-003	[04-DEC-2013]	BY_MW21_2.5				✓				✓
ES1326995-004	[04-DEC-2013]	BX_MW03_2.0			✓	✓	✓			✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

JOHN EWING

- *AU Certificate of Analysis - NATA (COA)	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	john.ewing@erm.com
- Chain of Custody (CoC) (COC)	Email	john.ewing@erm.com
- EDI Format - ENMRG (ENMRG)	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	john.ewing@erm.com
- EDI Format - ESDAT (ESDAT)	Email	john.ewing@erm.com
- EDI Format - XTab (XTAB)	Email	john.ewing@erm.com

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA)	Email	joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	joseph.ferring@erm.com
- Chain of Custody (CoC) (COC)	Email	joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	joseph.ferring@erm.com
- EDI Format - XTab (XTAB)	Email	joseph.ferring@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
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CERTIFICATE OF ANALYSIS

Work Order	: ES1326995	Page	: 1 of 9
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 10-DEC-2013
Sampler	: TC	Issue Date	: 16-DEC-2013
Site	: ----		
Quote number	: SY/794/13	No. of samples received	: 4
		No. of samples analysed	: 4

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EG005T: Poor precision was obtained for Barium on sample ES1327003 #002. Results have been confirmed by re-extraction and reanalysis.**
- **EP231: PFOA & PFOS results are reported as an aggregate of linear and branched isomers.**



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				BQ_MW14_2.4	BY_MW20_2.0	BY_MW21_2.5	BX_MW03_2.0	----
				[04-DEC-2013]	[04-DEC-2013]	[04-DEC-2013]	[04-DEC-2013]	----
Compound	CAS Number	LOR	Unit	ES1326995-001	ES1326995-002	ES1326995-003	ES1326995-004	----
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	7.3	----	----	----	----
EA032: Electrical Conductivity (saturated paste)								
Electrical Conductivity (Saturated Paste)	----	1	µS/cm	1100	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	18.1	21.3	17.6	24.0	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	8	----	----	----	----
Barium	7440-39-3	10	mg/kg	40	----	----	----	----
Beryllium	7440-41-7	1	mg/kg	4	----	----	----	----
Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	18	----	----	----	----
Cobalt	7440-48-4	2	mg/kg	324	----	----	----	----
Copper	7440-50-8	5	mg/kg	22	----	----	----	----
Lead	7439-92-1	5	mg/kg	14	----	----	----	----
Manganese	7439-96-5	5	mg/kg	984	----	----	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	----	----	----	----
Nickel	7440-02-0	2	mg/kg	92	----	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
Vanadium	7440-62-2	5	mg/kg	25	----	----	----	----
Zinc	7440-66-6	5	mg/kg	216	----	----	----	----
Thallium	7440-28-0	5	mg/kg	<5	----	----	----	----
Arsenic	7440-38-2	5	mg/kg	----	25	11	11	----
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	----	23	22	9	----
Copper	7440-50-8	5	mg/kg	----	21	21	26	----
Lead	7439-92-1	5	mg/kg	----	32	9	24	----
Nickel	7440-02-0	2	mg/kg	----	15	7	9	----
Zinc	7440-66-6	5	mg/kg	----	69	42	56	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	----	<0.1	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BQ_MW14_2.4	BY_MW20_2.0	BY_MW21_2.5	BX_MW03_2.0	----
				[04-DEC-2013]	[04-DEC-2013]	[04-DEC-2013]	[04-DEC-2013]	----
Compound	CAS Number	LOR	Unit	ES1326995-001	ES1326995-002	ES1326995-003	ES1326995-004	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	<5	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	<5	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	<5	<5	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	<5	<5	----
Chloromethane	74-87-3	5	mg/kg	<5	<5	<5	<5	----
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	<5	<5	----
Bromomethane	74-83-9	5	mg/kg	<5	<5	<5	<5	----
Chloroethane	75-00-3	5	mg/kg	<5	<5	<5	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	<5	<5	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BQ_MW14_2.4	BY_MW20_2.0	BY_MW21_2.5	BX_MW03_2.0	----
				[04-DEC-2013]	[04-DEC-2013]	[04-DEC-2013]	[04-DEC-2013]	----
Compound	CAS Number	LOR	Unit	ES1326995-001	ES1326995-002	ES1326995-003	ES1326995-004	----
EP074E: Halogenated Aliphatic Compounds - Continued								
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BQ_MW14_2.4	BY_MW20_2.0	BY_MW21_2.5	BX_MW03_2.0	----
				[04-DEC-2013]	[04-DEC-2013]	[04-DEC-2013]	[04-DEC-2013]	----
Compound	CAS Number	LOR	Unit	ES1326995-001	ES1326995-002	ES1326995-003	ES1326995-004	----
EP074H: Naphthalene								
Naphthalene	91-20-3	5	mg/kg	<5	<5	<5	<5	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				BQ_MW14_2.4	BY_MW20_2.0	BY_MW21_2.5	BX_MW03_2.0	----
				[04-DEC-2013]	[04-DEC-2013]	[04-DEC-2013]	[04-DEC-2013]	----
Compound	CAS Number	LOR	Unit	ES1326995-001	ES1326995-002	ES1326995-003	ES1326995-004	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	----
EP231: Perfluorinated Compounds								
PFOS	1763-23-1	0.0005	mg/kg	----	----	----	<0.0005	----
PFOA	335-67-1	0.0005	mg/kg	----	----	----	<0.0005	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	----	----	----	<0.005	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	66.6	----
EP074S: VOC Surrogates								



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				BQ_MW14_2.4	BY_MW20_2.0	BY_MW21_2.5	BX_MW03_2.0	----
				[04-DEC-2013]	[04-DEC-2013]	[04-DEC-2013]	[04-DEC-2013]	----
Compound	CAS Number	LOR	Unit	ES1326995-001	ES1326995-002	ES1326995-003	ES1326995-004	----
EP074S: VOC Surrogates - Continued								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	123	122	117	125	----
Toluene-D8	2037-26-5	0.1	%	95.0	98.3	94.4	89.5	----
4-Bromofluorobenzene	460-00-4	0.1	%	113	107	98.1	100	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	73.5	88.0	86.6	72.3	----
2-Chlorophenol-D4	93951-73-6	0.1	%	82.8	103	103	58.6	----
2,4,6-Tribromophenol	118-79-6	0.1	%	79.2	85.6	85.1	83.4	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	109	115	118	96.1	----
Anthracene-d10	1719-06-8	0.1	%	90.1	98.0	96.8	93.7	----
4-Terphenyl-d14	1718-51-0	0.1	%	96.6	105	104	99.4	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	95.4	95.9	92.5	79.6	----
Toluene-D8	2037-26-5	0.1	%	78.8	81.7	79.8	75.0	----
4-Bromofluorobenzene	460-00-4	0.1	%	83.9	80.4	82.8	80.0	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

QUALITY CONTROL REPORT

Work Order	: ES1326995	Page	: 1 of 16
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: TC	No. of samples received	: 4
Order number	: ----	No. of samples analysed	: 4
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC



NATA Accredited
Laboratory 825

Accredited for
compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics



Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA002 : pH (Soils) (QC Lot: 3205504)									
ES1326885-010	Anonymous	EA002: pH Value	----	0.1	pH Unit	3.6	3.6	0.0	0% - 20%
ES1326930-004	Anonymous	EA002: pH Value	----	0.1	pH Unit	5.1	5.1	0.0	0% - 20%
EA032: Electrical Conductivity (saturated paste) (QC Lot: 3206089)									
ES1326975-014	Anonymous	EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	3330	3000	10.4	0% - 20%
EA055: Moisture Content (QC Lot: 3205934)									
ES1326930-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	14.3	13.7	4.4	0% - 50%
ES1326995-002	BY_MW20_2.0	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	21.3	22.2	4.2	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 3208661)									
ES1326990-007	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	4	128	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	220	250	14.6	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	9	17	64.9	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	3	3	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	7	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	7	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	12	21	53.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	12	13	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	23	21	8.3	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	20	26	25.2	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	185	195	5.0	0% - 20%
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
ES1327003-002	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	1	1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	50	120	# 78.4	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	20	17	17.0	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	11	10	12.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	20	17	12.7	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	14	14	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	6	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	9	23.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	78	54	35.1	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005T: Total Metals by ICP-AES (QC Lot: 3208661) - continued									
ES1327003-002	Anonymous	EG005T: Vanadium	7440-62-2	5	mg/kg	36	31	15.7	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	32	28	11.4	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3208662)									
ES1326990-007	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1327003-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3205666)									
ES1326825-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326930-010	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3205558)									
ES1326995-001	BQ_MW14_2.4	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP074B: Oxygenated Compounds (QC Lot: 3205558)									
ES1326995-001	BQ_MW14_2.4	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3205558)									
ES1326995-001	BQ_MW14_2.4	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3205558)									
ES1326995-001	BQ_MW14_2.4	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3205558)									
ES1326995-001	BQ_MW14_2.4	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3205558) - continued									
ES1326995-001	BQ_MW14_2.4	EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
EP074F: Halogenated Aromatic Compounds (QC Lot: 3205558)									
ES1326995-001	BQ_MW14_2.4	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 3205558)									
ES1326995-001	BQ_MW14_2.4	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3205558)									
ES1326995-001	BQ_MW14_2.4	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3205664)									
ES1326825-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	2.2	2.5	11.5	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	0.8	0.7	16.8	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
ES1326930-010	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3205664)	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	0.7	0.7	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3205664) - continued									
ES1326825-001	Anonymous	EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	0.7	0.7	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1326930-010	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3205557)									
ES1326995-001	BQ_MW14_2.4	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1327001-003	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3205663)									
ES1326825-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	180	190	6.5	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	160	150	8.5	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1326930-010	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3205557)									
ES1326995-001	BQ_MW14_2.4	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1327001-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3205663)									
ES1326825-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	310	290	6.8	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3205663) - continued									
ES1326930-010	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 3205557)									
ES1326995-001	BQ_MW14_2.4	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1327001-003	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP231: Perfluorinated Compounds (QC Lot: 3206224)									
ES1326995-004	BX_MW03_2.0	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EA032: Electrical Conductivity (saturated paste) (QCLot: 3206089)									
EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	<1	1412 µS/cm	101	96	104	
EG005T: Total Metals by ICP-AES (QCLot: 3208661)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	106	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	104	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	111	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	101	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	101	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	103	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	107	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	107	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	110	85	127	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	110	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	111	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	95.1	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	109	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	119	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	----	----	----	----	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3208662)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	75.0	66	112	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3205666)									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	89.0	57.4	117	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3205558)									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	75.3	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	85.1	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	75.9	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	78.5	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	81.9	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	86.4	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	77.8	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	77.4	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	78.5	61	131	
EP074B: Oxygenated Compounds (QCLot: 3205558)									



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074B: Oxygenated Compounds (QCLot: 3205558) - continued									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	49.8	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	121	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	108	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	96.6	54	136	
		5	mg/kg	<5	----	----	----	----	
EP074C: Sulfonated Compounds (QCLot: 3205558)									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	69.6	54	126	
EP074D: Fumigants (QCLot: 3205558)									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	107	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	93.6	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	97.2	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	88.4	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	81.1	66	126	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3205558)									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	37.5	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	52.3	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	68.2	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	60.8	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	68.1	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	75.9	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	68.8	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	64.9	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	75.8	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	96.9	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	76.7	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	92.3	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	94.7	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	88.2	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	107	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	91.3	64	120	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3205558) - continued									
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	92.2	65	127	
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	86.2	70	130	
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	79.1	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	111	67	143	
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	79.9	62	122	
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	118	54	128	
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	93.4	55	129	
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	91.8	56	132	
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	87.3	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	29.9	19.8	134	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	88.1	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	80.1	48	136	
EP074F: Halogenated Aromatic Compounds (QCLot: 3205558)									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	83.3	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	79.2	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	78.3	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	84.8	62	130	
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	82.4	63	129	
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	76.3	63	129	
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	77.8	66	128	
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	71.8	54	134	
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	81.1	60	132	
EP074G: Trihalomethanes (QCLot: 3205558)									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	91.2	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	91.6	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	77.2	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	74.9	60	126	
EP074H: Naphthalene (QCLot: 3205558)									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	72.1	63	133	
		5	mg/kg	<5	----	----	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3205664)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	103	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	98.3	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	102	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	111	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	92.8	60.3	117	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	106	69	117	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	99.0	68	112	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 3205664) - continued									
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	99.4	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	95.9	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	65.1	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	73.9	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	# 82.8	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3205664)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	91.5	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	112	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	109	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	112	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	113	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	111	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	112	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	111	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	108	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	114	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	111	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	96.9	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	107	76	122	
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	97.7	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	94.9	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	97.4	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205557)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	83.7	68.4	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205663)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	99.3	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	97.4	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	93.9	64	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205557)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	81.7	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205663)									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	99.1	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	95.9	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	87.2	63	131	
EP080: BTEXN (QCLot: 3205557)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	86.8	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	76.6	62	128	



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
EP080: BTEXN (QCLot: 3205557) - continued								
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	79.7	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	78.1	60	120
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	80.3	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	93.7	62	138
EP231: Perfluorinated Compounds (QCLot: 3206224)								
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	122	54	146
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	101	54	134
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	71.3	56	138

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
EG005T: Total Metals by ICP-AES (QCLot: 3208661)							
ES1326990-007	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	102	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.4	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	128	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	110	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	101	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	126	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	106	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	94.0	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3208662)							
ES1326990-007	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	79.4	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3205666)							
ES1326825-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	93.0	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3205558)							
ES1326995-001	BQ_MW14_2.4	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	90.8	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	101	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3205558)							
ES1326995-001	BQ_MW14_2.4	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	87.4	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3205664)							
ES1326825-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	96.8	70	130



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 3205664) - continued								
ES1326825-001	Anonymous	EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	98.2	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	93.7	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	91.6	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	85.5	20	130	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3205664)								
ES1326825-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	106	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	107	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205557)								
ES1326995-001	BQ_MW14_2.4	EP080: C6 - C9 Fraction	----	32.5 mg/kg	94.7	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205663)								
ES1326825-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	74.3	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	81.8	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	74.5	52	132	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205557)								
ES1326995-001	BQ_MW14_2.4	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	92.2	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205663)								
ES1326825-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	98.5	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	78.8	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	60.5	52	132	
EP080: BTEXN (QCLot: 3205557)								
ES1326995-001	BQ_MW14_2.4	EP080: Benzene	71-43-2	2.5 mg/kg	85.8	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	76.8	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	86.6	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	80.3	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	77.5	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	88.5	70	130			
EP231: Perfluorinated Compounds (QCLot: 3206224)								
ES1326995-004	BX_MW03_2.0	EP231: PFOS	1763-23-1	0.0025 mg/kg	75.6	54	146	
		EP231: PFOA	335-67-1	0.0025 mg/kg	81.1	54	134	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 Fts)	27619-97-2	0.0125 mg/kg	66.1	56	138	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.



Sub-Matrix: SOIL					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number								
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205557)											
ES1326995-001	BQ_MW14_2.4	EP080: C6 - C9 Fraction	----	32.5 mg/kg	94.7	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205557)											
ES1326995-001	BQ_MW14_2.4	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	92.2	----	70	130	----	----	
EP080: BTEXN (QCLot: 3205557)											
ES1326995-001	BQ_MW14_2.4	EP080: Benzene	71-43-2	2.5 mg/kg	85.8	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	76.8	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	86.6	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	80.3	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	77.5	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	88.5	----	70	130	----	----	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3205558)											
ES1326995-001	BQ_MW14_2.4	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	90.8	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	101	----	70	130	----	----	
EP074F: Halogenated Aromatic Compounds (QCLot: 3205558)											
ES1326995-001	BQ_MW14_2.4	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	87.4	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205663)											
ES1326825-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	74.3	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	81.8	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	74.5	----	52	132	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205663)											
ES1326825-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	98.5	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	78.8	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	60.5	----	52	132	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3205664)											
ES1326825-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	96.8	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	98.2	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	93.7	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	91.6	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	85.5	----	20	130	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3205664)											
ES1326825-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	106	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	107	----	70	130	----	----	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3205666)											
ES1326825-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	93.0	----	70	130	----	----	
EP231: Perfluorinated Compounds (QCLot: 3206224)											
ES1326995-004	BX_MW03_2.0	EP231: PFOS	1763-23-1	0.0025 mg/kg	75.6	----	54	146	----	----	



Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
EP231: Perfluorinated Compounds (QCLot: 3206224) - continued										
ES1326995-004	BX_MW03_2.0	EP231: PFOA	335-67-1	0.0025 mg/kg	81.1	----	54	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	66.1	----	56	138	----	----
EG005T: Total Metals by ICP-AES (QCLot: 3208661)										
ES1326990-007	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	102	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.4	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	128	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	110	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	101	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	126	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	106	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	94.0	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3208662)										
ES1326990-007	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	79.4	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326995	Page	: 1 of 9
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: TC	No. of samples received	: 4
Order number	: ----	No. of samples analysed	: 4
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002 : pH (Soils)							
Soil Glass Jar - Unpreserved (EA002) BQ_MW14_2.4	04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	11-DEC-2013	11-DEC-2013	✓
EA032: Electrical Conductivity (saturated paste)							
Soil Glass Jar - Unpreserved (EA032) BQ_MW14_2.4	04-DEC-2013	----	----	----	11-DEC-2013	02-JUN-2014	✓
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103) BQ_MW14_2.4, BY_MW20_2.0, BY_MW21_2.5, BX_MW03_2.0	04-DEC-2013	----	----	----	11-DEC-2013	18-DEC-2013	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) BQ_MW14_2.4, BY_MW20_2.0, BY_MW21_2.5, BX_MW03_2.0	04-DEC-2013	12-DEC-2013	02-JUN-2014	✓	12-DEC-2013	02-JUN-2014	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) BQ_MW14_2.4, BY_MW20_2.0, BY_MW21_2.5, BX_MW03_2.0	04-DEC-2013	12-DEC-2013	01-JAN-2014	✓	13-DEC-2013	01-JAN-2014	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) BX_MW03_2.0	04-DEC-2013	11-DEC-2013	18-DEC-2013	✓	12-DEC-2013	20-JAN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Soil Glass Jar - Unpreserved (EP071) BQ_MW14_2.4, BY_MW20_2.0, BY_MW21_2.5, BX_MW03_2.0	04-DEC-2013	11-DEC-2013	18-DEC-2013	✓	12-DEC-2013	20-JAN-2014	✓
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074) BQ_MW14_2.4, BY_MW20_2.0, BY_MW21_2.5, BX_MW03_2.0	04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	11-DEC-2013	11-DEC-2013	✓
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074) BQ_MW14_2.4, BY_MW20_2.0, BY_MW21_2.5, BX_MW03_2.0	04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	11-DEC-2013	11-DEC-2013	✓



Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074) BQ_MW14_2.4, BY_MW21_2.5, BY_MW21_2.5, BX_MW03_2.0	04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	11-DEC-2013	11-DEC-2013	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074) BQ_MW14_2.4, BY_MW21_2.5, BY_MW21_2.5, BX_MW03_2.0	04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	11-DEC-2013	11-DEC-2013	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074) BQ_MW14_2.4, BY_MW21_2.5, BY_MW21_2.5, BX_MW03_2.0	04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	11-DEC-2013	11-DEC-2013	✓
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074) BQ_MW14_2.4, BY_MW21_2.5, BY_MW21_2.5, BX_MW03_2.0	04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	11-DEC-2013	11-DEC-2013	✓
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved (EP074) BQ_MW14_2.4, BY_MW21_2.5, BY_MW21_2.5, BX_MW03_2.0	04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	11-DEC-2013	11-DEC-2013	✓
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074) BQ_MW14_2.4, BY_MW21_2.5, BY_MW21_2.5, BX_MW03_2.0	04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	11-DEC-2013	11-DEC-2013	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) BQ_MW14_2.4, BY_MW21_2.5, BY_MW21_2.5, BX_MW03_2.0	04-DEC-2013	11-DEC-2013	18-DEC-2013	✓	12-DEC-2013	20-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) BQ_MW14_2.4, BY_MW21_2.5, BY_MW21_2.5, BX_MW03_2.0	04-DEC-2013	11-DEC-2013	18-DEC-2013	✓	12-DEC-2013	20-JAN-2014	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) BQ_MW14_2.4, BY_MW21_2.5, BY_MW21_2.5, BX_MW03_2.0	04-DEC-2013	11-DEC-2013	18-DEC-2013	✓	11-DEC-2013	18-DEC-2013	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) BQ_MW14_2.4, BY_MW21_2.5, BY_MW21_2.5, BX_MW03_2.0	04-DEC-2013	11-DEC-2013	18-DEC-2013	✓	11-DEC-2013	18-DEC-2013	✓

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 Work Order : ES1326995
 Client : ENVIRO RESOURCES MANAGEMENT
 Project : Project Symphony



Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231: Perfluorinated Compounds							
Soil Glass Jar - Unpreserved (EP231) BX_MW03_2.0	04-DEC-2013	11-DEC-2013	02-JUN-2014	✓	11-DEC-2013	20-JAN-2014	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Electrical Conductivity (Saturated Paste)	EA032	1	2	50.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	2	50.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	15	13.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Electrical Conductivity (Saturated Paste)	EA032	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Electrical Conductivity (Saturated Paste)	EA032	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **SOIL** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Matrix Spikes (MS) - Continued							
Total Metals by ICP-AES	EG005T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Electrical Conductivity (Saturated Paste)	EA032	SOIL	USEPA 600/2 - 78 - 054 - conductivity determined on a saturated paste.
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na ₂ SO ₄ and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005T: Total Metals by ICP-AES	ES1327003-002	Anonymous	Barium	7440-39-3	78.4 %	0-50%	RPD exceeds LOR based limits
Laboratory Control Spike (LCS) Recoveries							
EP075(SIM)A: Phenolic Compounds	3826436-007	----	Pentachlorophenol	87-86-5	82.8 %	3.9-57%	Recovery greater than upper control limit

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Matrix Spike outliers occur.

Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075(SIM)S: Phenolic Compound Surrogates	ES1326995-004	BX_MW03_2.0	2-Chlorophenol-D4	93951-73-6	58.6 %	66-122 %	Recovery less than lower data quality objective

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

Joseph Ferring @ ferm.com
 0424 970 468

CHAIN OF CUSTODY

ALS Laboratory
 please tick 5

LABORATORY OF CHEMISTRY...
 4000 1st Street...
 Delta, BC V4E 1L1

LABORATORY OF CHEMISTRY...
 4000 1st Street...
 Delta, BC V4E 1L1

LABORATORY OF CHEMISTRY...
 4000 1st Street...
 Delta, BC V4E 1L1

CLIENT:	NSW Ironing / ERM	TURNAROUND REQUIREMENTS:	<input checked="" type="checkbox"/> Standard TAT (last due date) <input type="checkbox"/> Non Standard or urgent TAT (last due date):	
OFFICE:	Project Symphony	ALS QUOTE NO.:	SV794413	
PROJECT:	Project Symphony	ULTRA TRACE CHEMICALS:	<input type="checkbox"/> Ultra Trace Chemicals	
ORDER NUMBER:	HAWKISH Campbell	SITE:	BAYSWATER / LIDDELL	
PROJECT MANAGER:	HAWKISH Campbell	CONTACT PH:	0481457280	
SAMPLER:	C. Henman + K. Fox	SAMPLER MOBILE:	0410367411	
COC emailed to ALS? (YES/NO)	YES (AKO)	EDD FORMAT (or default):	RELINQUISHED BY: <i>Angus</i> DATE/TIME: <i>10/12/13</i>	
Email Reports to (will default to PM if no other addresses are listed):	Project Manager S	DATE/TIME:	RECEIVED BY: <i>Angus</i> DATE/TIME: <i>10/12/13 1520</i>	
Email Invoice to (will default to PM if no other addresses are listed):	Project Manager S	DATE/TIME:	RECEIVED BY: <i>Ray</i> DATE/TIME: <i>10/12/13 1700</i>	
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:				

ALS USE	SAMPLE DETAILS	CONTAINER INFORMATION	ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (filtered dried bottle required).		FOR LABORATORY USE ONLY (Circle)	ADDITIONAL INFORMATION
	MATRIX: SOLID (S) WATER (W)				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
	1 BP- MW01	3/12/13	W			
	2 RP- MW02					
	3 BP- MW03					
	4 RP- MW04					
	5 BP- MW05					
	6 BP- MW06					
	7 DOL-031213					
	8 TRIP BLANK	25/11				TRIP + BTEX
	TRIP SPIKE	25/11				BTEX

Environmental Division
 Sydney
 Work Order
ES1326996



Telephone : +61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic, N = Nitric Preserved Plastic, ORC = Nitric Preserved ORC, SH = Sodium Hydroxide Preserved, S = Sodium Hydroxide
 V = VOA Vial HCl Preserved, VB = VOA Vial Sodium Sulfide Preserved, VS = VOA Vial Sulfuric Preserved, AV = Air Tight Unpreserved Vial SG = Sulfuric Preserved Air
 Z = Zinc Acetate Preserved Bottle, E = EDTA Preserved Beakers, ST = Sterile Bottle, ASS = Plastic Bag for Acid Sulfuric Soils, B = Unpreserved Bag

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: ES1326996		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: PROJECT SYMPHONY	Page	: 1 of 3
Order number	: ----		
C-O-C number	: ----	Quote number	: ES2013ENVRES0369 (SY/794/13)
Site	: BAYSWATER/LIDDELL		
Sampler	: C.H/K.D	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received	: 10-DEC-2013	Issue Date	: 11-DEC-2013 14:25
Client Requested Due Date	: 18-DEC-2013	Scheduled Reporting Date	: 18-DEC-2013

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 5°C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 9
Security Seal	: Intact.	No. of samples analysed	: 9

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Sample containers do not comply to pretreatment / preservation standards (AS, APHA, USEPA). Please refer to the Sample Container(s)/Preservation Non-Compliance Log at the end of this report for details.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Method	Sample Container Received	Preferred Sample Container for Analysis
EG035T : Total Mercury by FIMS		
BP_MW04	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear Plastic Bottle - Nitric Acid; Unfiltered

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020F Dissolved Metals by ICPMS	WATER - EG035T Total Mercury by FIMS	WATER - EG094A-T Total Metals in Fresh water Suite A by ORC-ICPMS	WATER - EG094B-T Total Metals in Fresh Water Suite B by ORC-ICPMS	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP080 BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1326996-001	03-DEC-2013 15:00	BP_MW01	✓				✓			
ES1326996-002	03-DEC-2013 15:00	BP_MW02		✓	✓	✓	✓			✓
ES1326996-003	03-DEC-2013 15:00	BP_MW03		✓	✓	✓	✓			✓
ES1326996-004	03-DEC-2013 15:00	BP_MW04		✓	✓	✓	✓			✓
ES1326996-005	03-DEC-2013 15:00	BP_MW05		✓	✓	✓	✓			✓
ES1326996-006	03-DEC-2013 15:00	BP_MW06		✓	✓	✓	✓			✓
ES1326996-007	03-DEC-2013 15:00	D01_031213		✓	✓	✓	✓			✓
ES1326996-008	25-NOV-2013 15:00	TRIP BLANK							✓	
ES1326996-009	25-NOV-2013 15:00	TRIP SPIKE						✓		

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-27 TRH/BTEXN/PAH/Phenols/8 Metals
ES1326996-001	03-DEC-2013 15:00	BP_MW01	✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **WATER**

Evaluation: ✗ = Holding time breach ; ✓ = Within holding time.

Method	Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received		Instructions Received	
					Date	Evaluation	Date	Evaluation
EP080: TPH Volatiles/BTEX								
TRIP BLANK	Amber VOC Vial - Sulfuric Acid	09-DEC-2013	----	10-DEC-2013	✗	10-DEC-2013	✗	
TRIP SPIKE	Amber VOC Vial - Sulfuric Acid	09-DEC-2013	----	10-DEC-2013	✗	10-DEC-2013	✗	



Requested Deliverables

MR HAMISH CAMPBELL

- *AU Certificate of Analysis - NATA (COA)	Email	hamish.campbell@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	hamish.campbell@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	hamish.campbell@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	hamish.campbell@erm.com
- Chain of Custody (CoC) (COC)	Email	hamish.campbell@erm.com
- EDI Format - ENMRG (ENMRG)	Email	hamish.campbell@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	hamish.campbell@erm.com
- EDI Format - ESDAT (ESDAT)	Email	hamish.campbell@erm.com
- EDI Format - XTab (XTAB)	Email	hamish.campbell@erm.com

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA)	Email	joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	joseph.ferring@erm.com
- Chain of Custody (CoC) (COC)	Email	joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	joseph.ferring@erm.com
- EDI Format - XTab (XTAB)	Email	joseph.ferring@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
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CERTIFICATE OF ANALYSIS

Work Order : ES1326996 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : PROJECT SYMPHONY Order number : ---- C-O-C number : ---- Sampler : C.H/K.D Site : BAYSWATER/LIDDELL Quote number : SY/794/13	Page : 1 of 14 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 10-DEC-2013 Issue Date : 18-DEC-2013 No. of samples received : 9 No. of samples analysed : 9
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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EG035: Positive mercury results have been confirmed by re-analysis**
- **EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BP_MW01	BP_MW02	BP_MW03	BP_MW04	BP_MW05
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326996-001	ES1326996-002	ES1326996-003	ES1326996-004	ES1326996-005
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L	0.001	----	----	----	----
Barium	7440-39-3	0.001	mg/L	0.033	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L	0.020	----	----	----	----
Copper	7440-50-8	0.001	mg/L	0.004	----	----	----	----
Lead	7439-92-1	0.001	mg/L	0.005	----	----	----	----
Manganese	7439-96-5	0.001	mg/L	0.730	----	----	----	----
Molybdenum	7439-98-7	0.001	mg/L	0.002	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	0.021	----	----	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	----	----	----	----
Thallium	7440-28-0	0.001	mg/L	<0.001	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L	<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	0.091	----	----	----	----
Boron	7440-42-8	0.05	mg/L	0.31	----	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	<0.0001	<0.0001	0.0002	<0.0001
EG094T: Total metals in Fresh water by ORC-ICPMS								
Selenium	7782-49-2	0.2	µg/L	----	1.3	1.9	17.2	1.9
Arsenic	7440-38-2	0.2	µg/L	----	2.4	2.4	42.6	5.8
Barium	7440-39-3	0.5	µg/L	----	60.6	127	358	39.8
Beryllium	7440-41-7	0.1	µg/L	----	0.7	0.1	7.9	<0.1
Boron	7440-42-8	5	µg/L	----	102	482	45	129
Cadmium	7440-43-9	0.05	µg/L	----	0.96	0.17	1.17	0.15
Chromium	7440-47-3	0.2	µg/L	----	6.0	1.2	80.3	1.4
Cobalt	7440-48-4	0.1	µg/L	----	98.8	28.6	543	216
Copper	7440-50-8	0.5	µg/L	----	7.5	3.2	154	1.6
Lead	7439-92-1	0.1	µg/L	----	79.9	43.1	122	10.6
Manganese	7439-96-5	0.5	µg/L	----	2750	753	3390	12000
Molybdenum	7439-98-7	0.1	µg/L	----	0.4	1.3	2.0	2.9



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BP_MW01	BP_MW02	BP_MW03	BP_MW04	BP_MW05
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326996-001	ES1326996-002	ES1326996-003	ES1326996-004	ES1326996-005
EG094T: Total metals in Fresh water by ORC-ICPMS - Continued								
Nickel	7440-02-0	0.5	µg/L	----	89.4	20.5	509	146
Thallium	7440-28-0	0.02	µg/L	----	0.24	0.18	1.25	0.47
Vanadium	7440-62-2	0.2	µg/L	----	9.0	6.4	98.3	3.0
Zinc	7440-66-6	1	µg/L	----	92	23	1140	102
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BP_MW01	BP_MW02	BP_MW03	BP_MW04	BP_MW05
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326996-001	ES1326996-002	ES1326996-003	ES1326996-004	ES1326996-005
EP074E: Halogenated Aliphatic Compounds - Continued								
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BP_MW01	BP_MW02	BP_MW03	BP_MW04	BP_MW05
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326996-001	ES1326996-002	ES1326996-003	ES1326996-004	ES1326996-005
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BP_MW01	BP_MW02	BP_MW03	BP_MW04	BP_MW05
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326996-001	ES1326996-002	ES1326996-003	ES1326996-004	ES1326996-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	87.1	90.2	98.6	117	125
Toluene-D8	2037-26-5	0.1	%	93.4	94.3	101	120	122
4-Bromofluorobenzene	460-00-4	0.1	%	95.5	96.6	102	110	110



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BP_MW01	BP_MW02	BP_MW03	BP_MW04	BP_MW05
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326996-001	ES1326996-002	ES1326996-003	ES1326996-004	ES1326996-005
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	33.7	37.2	35.2	37.5	40.5
2-Chlorophenol-D4	93951-73-6	0.1	%	67.2	72.0	70.3	76.0	78.0
2,4,6-Tribromophenol	118-79-6	0.1	%	91.2	91.5	89.8	84.1	88.8
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	78.2	79.0	79.6	70.2	75.3
Anthracene-d10	1719-06-8	0.1	%	70.8	79.4	71.6	67.0	75.6
4-Terphenyl-d14	1718-51-0	0.1	%	78.8	83.2	82.9	75.9	79.7
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	127	133	135	118	126
Toluene-D8	2037-26-5	0.1	%	118	119	126	114	117
4-Bromofluorobenzene	460-00-4	0.1	%	116	119	127	109	110



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BP_MW06	D01_031213	TRIP BLANK	TRIP SPIKE	----
Client sampling date / time				03-DEC-2013 15:00	03-DEC-2013 15:00	25-NOV-2013 15:00	25-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326996-006	ES1326996-007	ES1326996-008	ES1326996-009	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	----	----
EG094T: Total metals in Fresh water by ORC-ICPMS								
Selenium	7782-49-2	0.2	µg/L	0.8	1.9	----	----	----
Arsenic	7440-38-2	0.2	µg/L	1.8	2.4	----	----	----
Barium	7440-39-3	0.5	µg/L	37.1	126	----	----	----
Beryllium	7440-41-7	0.1	µg/L	0.2	0.1	----	----	----
Boron	7440-42-8	5	µg/L	103	498	----	----	----
Cadmium	7440-43-9	0.05	µg/L	0.11	0.16	----	----	----
Chromium	7440-47-3	0.2	µg/L	5.3	1.1	----	----	----
Cobalt	7440-48-4	0.1	µg/L	5.0	30.6	----	----	----
Copper	7440-50-8	0.5	µg/L	5.0	3.1	----	----	----
Lead	7439-92-1	0.1	µg/L	61.1	44.8	----	----	----
Manganese	7439-96-5	0.5	µg/L	681	750	----	----	----
Molybdenum	7439-98-7	0.1	µg/L	2.1	1.3	----	----	----
Nickel	7440-02-0	0.5	µg/L	11.1	22.2	----	----	----
Thallium	7440-28-0	0.02	µg/L	0.20	0.19	----	----	----
Vanadium	7440-62-2	0.2	µg/L	8.9	6.2	----	----	----
Zinc	7440-66-6	1	µg/L	20	26	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	----	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	----	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	----	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	----	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	----	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BP_MW06	D01_031213	TRIP BLANK	TRIP SPIKE	----
				03-DEC-2013 15:00	03-DEC-2013 15:00	25-NOV-2013 15:00	25-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326996-006	ES1326996-007	ES1326996-008	ES1326996-009	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	----	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	----	----	----
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	----	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	----	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	----	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	----	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	----	----	----
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	----	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	----	----	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	----	----	----
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	----	----	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	----	----	----
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	----	----	----
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	----	----	----
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	----	----	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	----	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	----	----	----
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	----	----	----
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	----	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	----	----	----
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	----	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BP_MW06	D01_031213	TRIP BLANK	TRIP SPIKE	----
				03-DEC-2013 15:00	03-DEC-2013 15:00	25-NOV-2013 15:00	25-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326996-006	ES1326996-007	ES1326996-008	ES1326996-009	----
EP074E: Halogenated Aliphatic Compounds - Continued								
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	----	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	----	----	----
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	----	----	----
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	----	----	----
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	----	----	----
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	----	----	----
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	----	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	----	----	----
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	----	----	----
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	----	----	----
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	----	----	----
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	----	----	----
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BP_MW06	D01_031213	TRIP BLANK	TRIP SPIKE	----
				03-DEC-2013 15:00	03-DEC-2013 15:00	25-NOV-2013 15:00	25-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326996-006	ES1326996-007	ES1326996-008	ES1326996-009	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	----	----	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	----	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	----	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BP_MW06	D01_031213	TRIP BLANK	TRIP SPIKE	----
				03-DEC-2013 15:00	03-DEC-2013 15:00	25-NOV-2013 15:00	25-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326996-006	ES1326996-007	ES1326996-008	ES1326996-009	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	17	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	15	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	15	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	16	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	15	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	31	----
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	78	----
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	18	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	122	121	----	----	----
Toluene-D8	2037-26-5	0.1	%	123	121	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	111	107	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	37.1	31.5	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	71.9	63.3	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	92.4	77.5	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	74.3	67.6	----	----	----
Anthracene-d10	1719-06-8	0.1	%	74.1	60.0	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	82.6	70.8	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	124	122	87.6	88.9	----
Toluene-D8	2037-26-5	0.1	%	117	115	83.1	81.0	----
4-Bromofluorobenzene	460-00-4	0.1	%	113	108	83.8	81.6	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: ES1326996	Page	: 1 of 20
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: PROJECT SYMPHONY	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER/LIDDELL	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 18-DEC-2013
Sampler	: C.H/K.D	No. of samples received	: 9
Order number	: ----	No. of samples analysed	: 9
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited
Laboratory 825

Accredited for
compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories

Celine Conceicao
Pabi Subba

Position

Senior Spectroscopist
Senior Organic Chemist

Accreditation Category

Sydney Inorganics
Sydney Organics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC



Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 3211082)									
ES1326913-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.027	0.025	5.9	0% - 20%
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.831	0.825	0.7	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.010	0.010	0.0	0% - 50%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	0.014	0.014	0.0	0% - 50%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.01	0.0	No Limit
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
EG020A-F: Boron	7440-42-8	0.05	mg/L	0.25	0.24	0.0	No Limit		
ES1326974-011	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.001	<0.001	0.0	No Limit
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	0.003	0.002	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
EG035F: Dissolved Mercury by FIMS (QC Lot: 3211080)									
ES1326913-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3213226)									
ES1326945-003	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3213226) - continued									
ES1326996-007	D01_031213	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG094T: Total metals in Fresh water by ORC-ICPMS (QC Lot: 3215879)									
ES1326846-001	Anonymous	EG094B-T: Selenium	7782-49-2	0.2	µg/L	0.8	1.1	25.7	No Limit
EG094T: Total metals in Fresh water by ORC-ICPMS (QC Lot: 3215880)									
ES1326996-002	BP_MW02	EG094A-T: Thallium	7440-28-0	0.02	µg/L	0.24	0.23	0.0	0% - 50%
		EG094A-T: Cadmium	7440-43-9	0.05	µg/L	0.96	0.91	5.8	0% - 50%
		EG094A-T: Beryllium	7440-41-7	0.1	µg/L	0.7	0.8	0.0	No Limit
		EG094A-T: Cobalt	7440-48-4	0.1	µg/L	98.8	99.7	1.0	0% - 20%
		EG094A-T: Lead	7439-92-1	0.1	µg/L	79.9	76.4	4.5	0% - 20%
		EG094A-T: Molybdenum	7439-98-7	0.1	µg/L	0.4	0.5	0.0	No Limit
		EG094A-T: Arsenic	7440-38-2	0.2	µg/L	2.4	2.4	0.0	0% - 50%
		EG094A-T: Chromium	7440-47-3	0.2	µg/L	6.0	5.8	2.4	0% - 20%
		EG094A-T: Vanadium	7440-62-2	0.2	µg/L	9.0	8.7	3.5	0% - 20%
		EG094A-T: Barium	7440-39-3	0.5	µg/L	60.6	60.6	0.0	0% - 20%
		EG094A-T: Copper	7440-50-8	0.5	µg/L	7.5	7.7	1.7	0% - 50%
		EG094A-T: Manganese	7439-96-5	0.5	µg/L	2750	2760	0.5	0% - 20%
		EG094A-T: Nickel	7440-02-0	0.5	µg/L	89.4	90.1	0.8	0% - 20%
EG094A-T: Zinc	7440-66-6	1	µg/L	92	93	0.0	0% - 20%		
EG094A-T: Boron	7440-42-8	5	µg/L	102	95	7.3	0% - 50%		
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3212031)									
ES1326996-001	BP_MW01	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES1327008-008	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<20	<20	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	74	73	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	211	215	2.0	0% - 50%
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	406	413	1.8	0% - 20%
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<20	<20	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	1390	1430	2.4	0% - 20%
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<20	<20	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<20	<20	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<20	<20	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 3212031)									
ES1326996-001	BP_MW01	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074B: Oxygenated Compounds (QC Lot: 3212031) - continued									
ES1326996-001	BP_MW01	EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES1327008-008	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<200	<200	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<200	<200	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<200	<200	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<200	<200	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3212031)									
ES1326996-001	BP_MW01	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1327008-008	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<20	<20	0.0	No Limit
EP074D: Fumigants (QC Lot: 3212031)									
ES1326996-001	BP_MW01	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1327008-008	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<20	<20	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<20	<20	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<20	<20	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<20	<20	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3212031)									
ES1326996-001	BP_MW01	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit		



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3212031) - continued											
ES1326996-001	BP_MW01	EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
ES1327008-008	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<20	<20	0.0	No Limit		
		EP074: Iodomethane	74-88-4	5	µg/L	<20	<20	0.0	No Limit		
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<20	<20	0.0	No Limit		
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<20	<20	0.0	No Limit		
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<20	<20	0.0	No Limit		
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<20	<20	0.0	No Limit		
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<20	<20	0.0	No Limit		
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<20	<20	0.0	No Limit		
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<20	<20	0.0	No Limit		
		EP074: Trichloroethene	79-01-6	5	µg/L	<20	<20	0.0	No Limit		
		EP074: Dibromomethane	74-95-3	5	µg/L	<20	<20	0.0	No Limit		
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<20	<20	0.0	No Limit		
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<20	<20	0.0	No Limit		
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<20	<20	0.0	No Limit		
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<20	<20	0.0	No Limit		
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<20	<20	0.0	No Limit		
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<20	<20	0.0	No Limit		
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<20	<20	0.0	No Limit		
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<20	<20	0.0	No Limit		
		EP074: Pentachloroethane	76-01-7	5	µg/L	<20	<20	0.0	No Limit		
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<20	<20	0.0	No Limit		
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<20	<20	0.0	No Limit		
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<200	<200	0.0	No Limit		
		EP074: Chloromethane	74-87-3	50	µg/L	<200	<200	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	50	µg/L	<200	<200	0.0	No Limit		
		EP074: Bromomethane	74-83-9	50	µg/L	<200	<200	0.0	No Limit		
		EP074: Chloroethane	75-00-3	50	µg/L	<200	<200	0.0	No Limit		
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<200	<200	0.0	No Limit		
		EP074F: Halogenated Aromatic Compounds (QC Lot: 3212031)									
		ES1326996-001	BP_MW01	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074F: Halogenated Aromatic Compounds (QC Lot: 3212031) - continued									
ES1326996-001	BP_MW01	EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES1327008-008	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<20	<20	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<20	<20	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<20	<20	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<20	<20	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<20	<20	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<20	<20	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<20	<20	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<20	<20	0.0	No Limit
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<20	<20	0.0	No Limit		
EP074G: Trihalomethanes (QC Lot: 3212031)									
ES1326996-001	BP_MW01	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES1327008-008	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<20	<20	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<20	<20	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<20	<20	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<20	<20	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3212031)									
ES1326996-001	BP_MW01	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
ES1327008-008	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	242	221	9.0	0% - 50%
EP075(SIM)A: Phenolic Compounds (QC Lot: 3206975)									
ES1326994-002	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3206975) - continued									
ES1326994-002	Anonymous	EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
ES1326996-005	BP_MW05	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3206975)							
ES1326994-002	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		ES1326996-005	BP_MW05	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5
EP075(SIM): Naphthalene	91-20-3			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Acenaphthylene	208-96-8			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Acenaphthene	83-32-9			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Fluorene	86-73-7			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Phenanthrene	85-01-8			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Anthracene	120-12-7			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Fluoranthene	206-44-0			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit		



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3206975) - continued									
ES1326996-005	BP_MW05	EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3206974)									
ES1326994-002	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
ES1326996-005	BP_MW05	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3207923)									
ES1326561-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1326561-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3212032)									
ES1326996-001	BP_MW01	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1327008-008	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	18800	18600	1.6	0% - 20%
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3206974)									
ES1326994-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
ES1326996-005	BP_MW05	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3207923)									
ES1326561-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1326561-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3212032)									
ES1326996-001	BP_MW01	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1327008-008	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	21900	21500	1.7	0% - 20%
EP080: BTEXN (QC Lot: 3207923)									
ES1326561-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP080: BTEXN (QC Lot: 3207923) - continued										
ES1326561-001	Anonymous	EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
ES1326561-003	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
EP080: BTEXN (QC Lot: 3212032)										
ES1326996-001	BP_MW01	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1327008-008	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	1880	1870	0.7	0% - 20%	
		EP080: Toluene	108-88-3	2	µg/L	3170	3150	0.6	0% - 20%	
		EP080: Ethylbenzene	100-41-4	2	µg/L	999	978	2.1	0% - 20%	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	3790	3740	1.3	0% - 20%	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	1360	1340	1.2	0% - 20%	
EP080: Naphthalene	91-20-3	5	µg/L	215	196	9.2	0% - 50%			



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EG020F: Dissolved Metals by ICP-MS (QCLot: 3211082)									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.7	80	118	
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	106	78	116	
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	99.5	81	111	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.7	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	97.3	81	111	
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	104	81	113	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	87.1	80	112	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.1	83	111	
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	104	81	113	
EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	93.8	82	116	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	104	81	113	
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	93.0	73	125	
EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	88.7	83	113	
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	96.9	82	110	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	85.1	80	116	
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	100	69	123	
EG035F: Dissolved Mercury by FIMS (QCLot: 3211080)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	102	78	114	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3213226)									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	106	77	115	
EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 3215879)									
EG094B-T: Selenium	7782-49-2	0.2	µg/L	<0.2	10 µg/L	86.4	78	124	
EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 3215880)									
EG094A-T: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	95.9	81	125	
EG094A-T: Barium	7440-39-3	0.5	µg/L	<0.5	10 µg/L	96.3	81	117	
EG094A-T: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	98.2	71	127	
EG094A-T: Boron	7440-42-8	5	µg/L	<5	10 µg/L	99.5	70	130	
EG094A-T: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	97.7	77	111	
EG094A-T: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	106	78	126	
EG094A-T: Cobalt	7440-48-4	0.1	µg/L	<0.1	10 µg/L	97.8	78	126	
EG094A-T: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	99.6	78	126	
EG094A-T: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	104	75	123	
EG094A-T: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	105	81	121	
EG094A-T: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	91.0	77	127	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 3215880) - continued									
EG094A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	97.7	82	124	
EG094A-T: Thallium	7440-28-0	0.02	µg/L	<0.02	10 µg/L	101	71	125	
EG094A-T: Vanadium	7440-62-2	0.2	µg/L	<0.2	10 µg/L	94.2	82	118	
EG094A-T: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	92.7	75	129	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3212031)									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	94.6	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	103	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	105	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	103	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	105	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	103	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	102	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	105	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	102	62	126	
EP074B: Oxygenated Compounds (QCLot: 3212031)									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	82.9	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	112	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	107	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	106	65	137	
EP074C: Sulfonated Compounds (QCLot: 3212031)									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	88.1	72.8	127	
EP074D: Fumigants (QCLot: 3212031)									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	98.1	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	101	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	90.0	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	88.4	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	96.0	69	117	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3212031)									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	70.1	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	89.0	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	104	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	102	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	105	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	105	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	102	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	91.9	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	93.0	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	99.4	75	119	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3212031) - continued									
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	103	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	94.2	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	97.9	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	89.2	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	103	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	105	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	96.5	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	102	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	108	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	104	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	85.5	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	94.9	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	98.9	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	105	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	109	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	85.4	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	84.5	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	98.3	58	132	
EP074F: Halogenated Aromatic Compounds (QCLot: 3212031)									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	99.3	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	106	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	104	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	104	71	121	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	104	74	120	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	106	72	120	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	106	77	117	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	96.4	60	126	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	97.6	67	125	
EP074G: Trihalomethanes (QCLot: 3212031)									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	104	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	81.5	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	87.7	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	89.9	73.5	126	
EP074H: Naphthalene (QCLot: 3212031)									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	98.0	61	125	
EP075(SIM)A: Phenolic Compounds (QCLot: 3206975)									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	41.7	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)	Recovery Limits (%)	
					Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 3206975) - continued								
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	83.8	63.8	110
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	60.0	55.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	53.2	42.5	114
		2	µg/L	<2.0	----	----	----	----
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	65.5	62.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	70.9	59.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	62.5	59.3	122
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	68.3	64.3	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	76.4	63	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	85.3	58.7	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	83.0	50	108
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	# 124	8.7	95
		2	µg/L	<2.0	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3206975)								
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	75.9	58.6	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	74.3	63.6	114
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	63.2	62.2	113
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	67.1	63.9	115
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	64.2	62.6	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	66.6	64.3	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	74.0	63.6	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	72.4	63.1	118
		1	µg/L	<1.0	----	----	----	----



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)	Recovery Limits (%)	
					Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3206975) - continued								
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	67.7	64.1	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	66.0	62.5	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	68.3	61.7	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	64.0	61.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	73.6	63.3	117
		0.5	µg/L	<0.5	----	----	----	----
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	65.9	59.9	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	69.0	61.2	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	73.0	59.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3206974)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	96.7	59	129
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	91.0	71	131
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	93.3	62	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207923)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	97.5	75	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3212032)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	93.3	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3206974)								
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	90.4	58.9	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	99.8	73.9	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
		50	µg/L	----	1500 µg/L	96.2	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207923)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	95.6	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3212032)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	94.7	75	127
EP080: BTEXN (QCLot: 3207923)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	113	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	105	65	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	99.0	70	120



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
EP080: BTEXN (QCLot: 3207923) - continued								
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	98.0	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	101	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	82.9	70	124
EP080: BTEXN (QCLot: 3212032)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	108	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	115	65	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	98.0	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	91.4	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	101	70	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%)	Recovery Limits (%)	
				MS	Low	High	
EG020F: Dissolved Metals by ICP-MS (QCLot: 3211082)							
ES1326913-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	116	70	130
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	103	70	130
		EG020A-F: Barium	7440-39-3	0.2 mg/L	# Not Determined	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	103	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	104	70	130
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	104	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	100	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	102	70	130
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	99.6	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	102	70	130
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	126	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	104	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 3211080)							
ES1326913-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	89.7	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3213226)							
ES1326945-004	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	87.2	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 3215880)							
ES1326996-003	BP_MW03	EG094A-T: Arsenic	7440-38-2	50 µg/L	123	70	130
		EG094A-T: Barium	7440-39-3	50 µg/L	114	70	130
		EG094A-T: Beryllium	7440-41-7	50 µg/L	91.5	70	130
		EG094A-T: Cadmium	7440-43-9	12.5 µg/L	105	70	130
		EG094A-T: Chromium	7440-47-3	50 µg/L	101	70	130
		EG094A-T: Cobalt	7440-48-4	50 µg/L	116	70	130
		EG094A-T: Copper	7440-50-8	50 µg/L	108	70	130
		EG094A-T: Lead	7439-92-1	50 µg/L	105	70	130
		EG094A-T: Manganese	7439-96-5	50 µg/L	# Not Determined	70	130
		EG094A-T: Nickel	7440-02-0	50 µg/L	107	70	130
EG094A-T: Vanadium	7440-62-2	50 µg/L	95.3	70	130		
EG094A-T: Zinc	7440-66-6	50 µg/L	107	70	130		
EP074E: Halogenated Aliphatic Compounds (QCLot: 3212031)							
ES1326996-001	BP_MW01	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	82.8	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	108	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3212031)							
ES1326996-001	BP_MW01	EP074: Chlorobenzene	108-90-7	25 µg/L	118	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3206975)							
ES1326994-001	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	45.6	20	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	74.9	60	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	99.0	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	# 70.0	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	117	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3206975)							
ES1326994-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	# 70.0	70	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	72.7	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3206974)							
ES1326994-001	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	103	74	150
		EP071: C15 - C28 Fraction	----	300 µg/L	110	77	153
		EP071: C29 - C36 Fraction	----	200 µg/L	82.9	67	153
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207923)							
ES1326561-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	127	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3212032)							
ES1326996-001	BP_MW01	EP080: C6 - C9 Fraction	----	325 µg/L	112	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3206974)							
ES1326994-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	109	74	150



Sub-Matrix: WATER

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3206974) - continued								
ES1326994-001	Anonymous	EP071: >C16 - C34 Fraction	----	350 µg/L	95.0	77	153	
		EP071: >C34 - C40 Fraction	----	150 µg/L	90.2	67	153	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207923)								
ES1326561-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3212032)								
ES1326996-001	BP_MW01	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	113	70	130	
EP080: BTEXN (QCLot: 3207923)								
ES1326561-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	126	70	130	
		EP080: Toluene	108-88-3	25 µg/L	114	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	110	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	107	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	114	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	122	70	130		
EP080: BTEXN (QCLot: 3212032)								
ES1326996-001	BP_MW01	EP080: Benzene	71-43-2	25 µg/L	114	70	130	
		EP080: Toluene	108-88-3	25 µg/L	106	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	110	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	104	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	109	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	102	70	130		

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: WATER

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3206974)										
ES1326994-001	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	103	----	74	150	----	----
		EP071: C15 - C28 Fraction	----	300 µg/L	110	----	77	153	----	----
		EP071: C29 - C36 Fraction	----	200 µg/L	82.9	----	67	153	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3206974)										
ES1326994-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	109	----	74	150	----	----
		EP071: >C16 - C34 Fraction	----	350 µg/L	95.0	----	77	153	----	----
		EP071: >C34 - C40 Fraction	----	150 µg/L	90.2	----	67	153	----	----



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP075(SIM)A: Phenolic Compounds (QCLot: 3206975)										
ES1326994-001	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	45.6	----	20	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	74.9	----	60	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	99.0	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	# 70.0	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	117	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3206975)										
ES1326994-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	# 70.0	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	20 µg/L	72.7	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207923)										
ES1326561-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	127	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207923)										
ES1326561-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	----	70	130	----	----
EP080: BTEXN (QCLot: 3207923)										
ES1326561-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	126	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	114	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	110	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	107	----	70	130	----	----
		EP080: ortho-Xylene	106-42-3	25 µg/L	114	----	70	130	----	----
		EP080: Naphthalene	95-47-6	25 µg/L	114	----	70	130	----	----
EG035F: Dissolved Mercury by FIMS (QCLot: 3211080)										
ES1326913-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	89.7	----	70	130	----	----
EG020F: Dissolved Metals by ICP-MS (QCLot: 3211082)										
ES1326913-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	116	----	70	130	----	----
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	103	----	70	130	----	----
		EG020A-F: Barium	7440-39-3	0.2 mg/L	# Not Determined	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	103	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	104	----	70	130	----	----
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	104	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	100	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	102	----	70	130	----	----
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	99.6	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	102	----	70	130	----	----
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	126	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	104	----	70	130	----	----
EP074E: Halogenated Aliphatic Compounds (QCLot: 3212031)										
ES1326996-001	BP_MW01	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	82.8	----	70	130	----	----



Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3212031) - continued											
ES1326996-001	BP_MW01	EP074: Trichloroethene	79-01-6	25 µg/L	108	----	70	130	----	----	
EP074F: Halogenated Aromatic Compounds (QCLot: 3212031)											
ES1326996-001	BP_MW01	EP074: Chlorobenzene	108-90-7	25 µg/L	118	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3212032)											
ES1326996-001	BP_MW01	EP080: C6 - C9 Fraction	----	325 µg/L	112	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3212032)											
ES1326996-001	BP_MW01	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	113	----	70	130	----	----	
EP080: BTEXN (QCLot: 3212032)											
ES1326996-001	BP_MW01	EP080: Benzene	71-43-2	25 µg/L	114	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	106	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	110	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	104	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	109	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	102	----	70	130	----	----	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3213226)											
ES1326945-004	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	87.2	----	70	130	----	----	
EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 3215880)											
ES1326996-003	BP_MW03	EG094A-T: Arsenic	7440-38-2	50 µg/L	123	----	70	130	----	----	
		EG094A-T: Barium	7440-39-3	50 µg/L	114	----	70	130	----	----	
		EG094A-T: Beryllium	7440-41-7	50 µg/L	91.5	----	70	130	----	----	
		EG094A-T: Cadmium	7440-43-9	12.5 µg/L	105	----	70	130	----	----	
		EG094A-T: Chromium	7440-47-3	50 µg/L	101	----	70	130	----	----	
		EG094A-T: Cobalt	7440-48-4	50 µg/L	116	----	70	130	----	----	
		EG094A-T: Copper	7440-50-8	50 µg/L	108	----	70	130	----	----	
		EG094A-T: Lead	7439-92-1	50 µg/L	105	----	70	130	----	----	
		EG094A-T: Manganese	7439-96-5	50 µg/L	# Not Determined	----	70	130	----	----	
		EG094A-T: Nickel	7440-02-0	50 µg/L	107	----	70	130	----	----	
		EG094A-T: Vanadium	7440-62-2	50 µg/L	95.3	----	70	130	----	----	
		EG094A-T: Zinc	7440-66-6	50 µg/L	107	----	70	130	----	----	

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326996	Page	: 1 of 10
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: PROJECT SYMPHONY	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER/LIDDELL	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 18-DEC-2013
Sampler	: C.H/K.D	No. of samples received	: 9
Order number	: ----	No. of samples analysed	: 9
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) BP_MW01	03-DEC-2013	---	01-JUN-2014	----	13-DEC-2013	01-JUN-2014	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) BP_MW01	03-DEC-2013	---	31-DEC-2013	----	14-DEC-2013	31-DEC-2013	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG035T) BP_MW02, BP_MW03, BP_MW05, BP_MW06, D01_031213	03-DEC-2013	----	----	----	16-DEC-2013	31-DEC-2013	✓
Clear HDPE (U-T ORC) - Unspecified; Lab-acidified (EG035T) BP_MW04	03-DEC-2013	----	----	----	16-DEC-2013	17-DEC-2013	✓
EG094T: Total metals in Fresh water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG094A-T) BP_MW02, BP_MW03, BP_MW05, BP_MW06, D01_031213	03-DEC-2013	17-DEC-2013	01-JUN-2014	✓	17-DEC-2013	01-JUN-2014	✓
Clear HDPE (U-T ORC) - Unspecified; Lab-acidified (EG094A-T) BP_MW04	03-DEC-2013	17-DEC-2013	01-JUN-2014	✓	17-DEC-2013	01-JUN-2014	✓
EG094T: Total metals in Fresh water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG094B-T) BP_MW02, BP_MW03, BP_MW05, BP_MW06, D01_031213	03-DEC-2013	17-DEC-2013	01-JUN-2014	✓	17-DEC-2013	01-JUN-2014	✓
Clear HDPE (U-T ORC) - Unspecified; Lab-acidified (EG094B-T) BP_MW04	03-DEC-2013	17-DEC-2013	01-JUN-2014	✓	17-DEC-2013	01-JUN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Amber Glass Bottle - Unpreserved (EP071) BP_MW01, BP_MW02, BP_MW03, BP_MW04, BP_MW05, BP_MW06, D01_031213	03-DEC-2013	11-DEC-2013	10-DEC-2013	*	13-DEC-2013	20-JAN-2014	✓



Matrix: **WATER** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) BP_MW01, BP_MW03, BP_MW05, D01_031213 BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	15-DEC-2013	17-DEC-2013	✓	15-DEC-2013	17-DEC-2013	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BP_MW01, BP_MW03, BP_MW05, D01_031213 BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	15-DEC-2013	17-DEC-2013	✓	15-DEC-2013	17-DEC-2013	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BP_MW01, BP_MW03, BP_MW05, D01_031213 BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	15-DEC-2013	17-DEC-2013	✓	15-DEC-2013	17-DEC-2013	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) BP_MW01, BP_MW03, BP_MW05, D01_031213 BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	15-DEC-2013	17-DEC-2013	✓	15-DEC-2013	17-DEC-2013	✓
EP074H: Naphthalene							
Amber VOC Vial - Sulfuric Acid (EP074) BP_MW01, BP_MW03, BP_MW05, D01_031213 BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	15-DEC-2013	17-DEC-2013	✓	15-DEC-2013	17-DEC-2013	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BP_MW01, BP_MW03, BP_MW05, D01_031213 BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	15-DEC-2013	17-DEC-2013	✓	15-DEC-2013	17-DEC-2013	✓
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BP_MW01, BP_MW03, BP_MW05, D01_031213 BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	15-DEC-2013	17-DEC-2013	✓	15-DEC-2013	17-DEC-2013	✓



Matrix: **WATER**

Evaluation: ✘ = Holding time breach ; ✔ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) BP_MW01, BP_MW03, BP_MW05, D01_031213	BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	15-DEC-2013	17-DEC-2013	✔	15-DEC-2013	17-DEC-2013	✔
EP075(SIM)A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BP_MW01, BP_MW03, BP_MW05, D01_031213	BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	11-DEC-2013	10-DEC-2013	✘	13-DEC-2013	20-JAN-2014	✔
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BP_MW01, BP_MW03, BP_MW05, D01_031213	BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	11-DEC-2013	10-DEC-2013	✘	13-DEC-2013	20-JAN-2014	✔
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) BP_MW01, BP_MW03, BP_MW05, D01_031213	BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	15-DEC-2013	17-DEC-2013	✔	15-DEC-2013	17-DEC-2013	✔
Amber VOC Vial - Sulfuric Acid (EP080) TRIP BLANK,	TRIP SPIKE	25-NOV-2013	13-DEC-2013	09-DEC-2013	✘	13-DEC-2013	09-DEC-2013	✘
EP080/071: Total Petroleum Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP080) BP_MW01, BP_MW03, BP_MW05, D01_031213	BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	15-DEC-2013	17-DEC-2013	✔	15-DEC-2013	17-DEC-2013	✔
Amber VOC Vial - Sulfuric Acid (EP080) TRIP BLANK		25-NOV-2013	13-DEC-2013	09-DEC-2013	✘	13-DEC-2013	09-DEC-2013	✘



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Reaular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	1	9	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	13	15.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	6	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	1	7	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	13	15.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	32	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	14	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<i>Analytical Methods</i>							
Matrix Spikes (MS) - Continued							
TPH Volatiles/BTEX	EP080	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)



<i>Analytical Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Digestion for Total Recoverable Metals - ORC	EN25-ORC	WATER	Modified USEPA SW846-3005. This is an Ultrapure Nitric acid digestion procedure used to prepare surface and ground water samples for analysis by ORC- ICPMS. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Lab Acidification of Metals	EN80	WATER	USEPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075(SIM)A: Phenolic Compounds	3827936-011	----	Pentachlorophenol	87-86-5	124 %	8.7-95%	Recovery greater than upper control limit
Matrix Spike (MS) Recoveries							
EG020F: Dissolved Metals by ICP-MS	ES1326913-002	Anonymous	Barium	7440-39-3	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG094T: Total metals in Fresh water by ORC-ICPMS	ES1326996-003	BP_MW03	Manganese	7439-96-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP075(SIM)A: Phenolic Compounds	ES1326994-001	Anonymous	4-Chloro-3-methylphenol	59-50-7	70.0 %	70-130%	Recovery less than lower data quality objective
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	ES1326994-001	Anonymous	Acenaphthene	83-32-9	70.0 %	70-130%	Recovery less than lower data quality objective

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: **WATER**

Method	Extraction / Preparation			Analysis			
	Container / Client Sample ID(s)	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved							
BP_MW01, BP_MW03, BP_MW05, D01_031213	BP_MW02, BP_MW04, BP_MW06,	11-DEC-2013	10-DEC-2013	1	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							



Method		Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Analysis Holding Time Compliance							
Amber Glass Bottle - Unpreserved							
BP_MW01,	BP_MW02,	11-DEC-2013	10-DEC-2013	1	----	----	----
BP_MW03,	BP_MW04,						
BP_MW05,	BP_MW06,						
D01_031213							
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved							
BP_MW01,	BP_MW02,	11-DEC-2013	10-DEC-2013	1	----	----	----
BP_MW03,	BP_MW04,						
BP_MW05,	BP_MW06,						
D01_031213							
Amber VOC Vial - Sulfuric Acid							
TRIP BLANK		13-DEC-2013	09-DEC-2013	4	13-DEC-2013	09-DEC-2013	4
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Amber Glass Bottle - Unpreserved							
BP_MW01,	BP_MW02,	11-DEC-2013	10-DEC-2013	1	----	----	----
BP_MW03,	BP_MW04,						
BP_MW05,	BP_MW06,						
D01_031213							
Amber VOC Vial - Sulfuric Acid							
TRIP BLANK		13-DEC-2013	09-DEC-2013	4	13-DEC-2013	09-DEC-2013	4
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid							
TRIP BLANK,	TRIP SPIKE	13-DEC-2013	09-DEC-2013	4	13-DEC-2013	09-DEC-2013	4

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1326999

<p>Client : ENVIRO RESOURCES MANAGEMENT</p> <p>Contact : MR JOSEPH FERRING</p> <p>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</p>	<p>Laboratory : Environmental Division Sydney</p> <p>Contact : Barbara Hanna</p> <p>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</p>
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<p>E-mail : joseph.ferring@erm.com</p> <p>Telephone : +61 02 8584 8888</p> <p>Facsimile : +61 02 8584 8800</p>	<p>E-mail : Barbara.Hanna@alsglobal.com</p> <p>Telephone : +61 2 8784 8555</p> <p>Facsimile : +61 2 8784 8555</p>
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<p>Project : Project Symphony</p> <p>Order number : 0224193</p> <p>C-O-C number : ----</p> <p>Site : ----</p> <p>Sampler : AM</p>	<p>Page : 1 of 3</p> <p>Quote number : ES2013ENVRES0369 (SY/794/13)</p> <p>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</p>
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Dates

<p>Date Samples Received : 10-DEC-2013</p> <p>Client Requested Due Date : 13-DEC-2013</p>	<p>Issue Date : 10-DEC-2013 21:14</p> <p>Scheduled Reporting Date : 13-DEC-2013</p>
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Delivery Details

<p>Mode of Delivery : Carrier</p> <p>No. of coolers/boxes : 1 HARD</p> <p>Security Seal : Intact.</p>	<p>Temperature : 4.5°C - Ice present</p> <p>No. of samples received : 16</p> <p>No. of samples analysed : 16</p>
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General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- Asbestos analysis will be subcontracted to ASET.
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - ASB-SOL (Subcontracted) Asbestos - Count (Solid)	SOIL - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP080 BTEXN	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1326999-001	04-DEC-2013 15:00	BM_SB01_0.5	✓					✓
ES1326999-002	04-DEC-2013 15:00	BM_SB01_1.5	✓	✓	✓			✓
ES1326999-003	04-DEC-2013 15:00	BM_SB02_0.5	✓					✓
ES1326999-004	04-DEC-2013 15:00	BM_SB03_0.5	✓					✓
ES1326999-005	04-DEC-2013 15:00	BM_SB04_0.5	✓					✓
ES1326999-006	04-DEC-2013 15:00	BM_SB05_0.5	✓					✓
ES1326999-007	04-DEC-2013 15:00	BM_SB06_0.1	✓					✓
ES1326999-008	04-DEC-2013 15:00	BM_SB07_0.5	✓					✓
ES1326999-009	04-DEC-2013 15:00	BM_SB08_0.5	✓					✓
ES1326999-010	04-DEC-2013 15:00	BM_SB09_0.5	✓					✓
ES1326999-011	04-DEC-2013 15:00	BM_MW04_0.5	✓					✓
ES1326999-012	04-DEC-2013 15:00	BM_MW06_0.1	✓					✓
ES1326999-013	28-NOV-2013 15:00	ERM TSP13				✓		
ES1326999-014	28-NOV-2013 15:00	BLK					✓	
ES1326999-016	28-NOV-2013 15:00	TSC				✓		

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-02T 8 metals (Total)	WATER - W-18 TRH(C6 - C9)/BTEXN
ES1326999-015	04-DEC-2013 15:00	R01_041213_HC	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA)	Email	joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	joseph.ferring@erm.com
- Attachment - Report (SUBCO)	Email	joseph.ferring@erm.com
- Chain of Custody (CoC) (COC)	Email	joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	joseph.ferring@erm.com
- EDI Format - XTab (XTAB)	Email	joseph.ferring@erm.com

SYMPHONY MACGEN

- *AU Certificate of Analysis - NATA (COA)	Email	symphony.macgen@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	symphony.macgen@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	symphony.macgen@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	symphony.macgen@erm.com
- Attachment - Report (SUBCO)	Email	symphony.macgen@erm.com
- Chain of Custody (CoC) (COC)	Email	symphony.macgen@erm.com
- EDI Format - ENMRG (ENMRG)	Email	symphony.macgen@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	symphony.macgen@erm.com
- EDI Format - ESDAT (ESDAT)	Email	symphony.macgen@erm.com
- EDI Format - XTab (XTAB)	Email	symphony.macgen@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
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CERTIFICATE OF ANALYSIS

Work Order : ES1326999 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : Project Symphony Order number : 0224193 C-O-C number : ---- Sampler : AM Site : ---- Quote number : SY/794/13	Page : 1 of 15 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 10-DEC-2013 Issue Date : 16-DEC-2013 No. of samples received : 16 No. of samples analysed : 16
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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825
 Accredited for compliance with
 ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Inorganics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EG005T: Poor precision was obtained for Lead on sample ES1327032 #001. Results have been confirmed by re-extraction and re-analysis.**
- **EP080: The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.**



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BM_SB01_0.5	BM_SB01_1.5	BM_SB02_0.5	BM_SB03_0.5	BM_SB04_0.5
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326999-001	ES1326999-002	ES1326999-003	ES1326999-004	ES1326999-005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	18.8	19.9	20.4	18.4	21.2
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	9	17	10	8	24
Cadmium	7440-43-9	1	mg/kg	1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	18	27	20	19	13
Copper	7440-50-8	5	mg/kg	23	55	30	11	25
Lead	7439-92-1	5	mg/kg	17	18	22	14	15
Nickel	7440-02-0	2	mg/kg	18	29	76	14	20
Zinc	7440-66-6	5	mg/kg	118	91	84	45	101
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	0.5	mg/kg	----	<0.5	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	----	----	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	----	----	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	----	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	----	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BM_SB01_0.5	BM_SB01_1.5	BM_SB02_0.5	BM_SB03_0.5	BM_SB04_0.5
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326999-001	ES1326999-002	ES1326999-003	ES1326999-004	ES1326999-005
EP074D: Fumigants - Continued								
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	----	----	----
Chloromethane	74-87-3	5	mg/kg	----	<5	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	----	<5	----	----	----
Bromomethane	74-83-9	5	mg/kg	----	<5	----	----	----
Chloroethane	75-00-3	5	mg/kg	----	<5	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BM_SB01_0.5	BM_SB01_1.5	BM_SB02_0.5	BM_SB03_0.5	BM_SB04_0.5
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326999-001	ES1326999-002	ES1326999-003	ES1326999-004	ES1326999-005
EP074F: Halogenated Aromatic Compounds - Continued								
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	----	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	----	----	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	----	----	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	----	----	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	----	----	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	----	----	----
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	5	mg/kg	----	<5	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BM_SB01_0.5	BM_SB01_1.5	BM_SB02_0.5	BM_SB03_0.5	BM_SB04_0.5
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326999-001	ES1326999-002	ES1326999-003	ES1326999-004	ES1326999-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	140	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	120	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	260	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	220	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	220	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BM_SB01_0.5	BM_SB01_1.5	BM_SB02_0.5	BM_SB03_0.5	BM_SB04_0.5
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326999-001	ES1326999-002	ES1326999-003	ES1326999-004	ES1326999-005
EP080: BTEXN - Continued								
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	68.6	----	----	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	105	----	----	----
Toluene-D8	2037-26-5	0.1	%	----	80.1	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	97.2	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	82.6	79.8	74.0	85.5	64.4
2-Chlorophenol-D4	93951-73-6	0.1	%	89.9	83.9	80.0	92.1	67.4
2,4,6-Tribromophenol	118-79-6	0.1	%	107	99.9	99.0	94.0	90.6
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	115	109	114	104	98.9
Anthracene-d10	1719-06-8	0.1	%	92.1	92.4	94.1	88.8	87.8
4-Terphenyl-d14	1718-51-0	0.1	%	95.0	100	104	97.4	96.3
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	111	99.2	110	102	94.7
Toluene-D8	2037-26-5	0.1	%	88.3	72.6	98.5	92.9	84.5
4-Bromofluorobenzene	460-00-4	0.1	%	88.2	82.5	102	98.4	89.8



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BM_SB05_0.5	BM_SB06_0.1	BM_SB07_0.5	BM_SB08_0.5	BM_SB09_0.5
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326999-006	ES1326999-007	ES1326999-008	ES1326999-009	ES1326999-010
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	22.4	26.4	23.3	20.6	22.9
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	25	19	14	19	20
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	16	27	27	11	27
Copper	7440-50-8	5	mg/kg	29	35	32	31	29
Lead	7439-92-1	5	mg/kg	28	26	20	21	25
Nickel	7440-02-0	2	mg/kg	29	22	26	17	29
Zinc	7440-66-6	5	mg/kg	71	71	70	80	70
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BM_SB05_0.5	BM_SB06_0.1	BM_SB07_0.5	BM_SB08_0.5	BM_SB09_0.5
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326999-006	ES1326999-007	ES1326999-008	ES1326999-009	ES1326999-010
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BM_SB05_0.5	BM_SB06_0.1	BM_SB07_0.5	BM_SB08_0.5	BM_SB09_0.5
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326999-006	ES1326999-007	ES1326999-008	ES1326999-009	ES1326999-010
EP080: BTEXN - Continued								
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	85.1	65.6	69.0	67.4	82.6
2-Chlorophenol-D4	93951-73-6	0.1	%	95.3	65.2	60.8	70.4	58.0
2.4.6-Tribromophenol	118-79-6	0.1	%	96.2	97.3	81.7	83.6	85.8
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	111	106	77.8	92.2	81.2
Anthracene-d10	1719-06-8	0.1	%	90.0	92.2	87.0	88.0	90.5
4-Terphenyl-d14	1718-51-0	0.1	%	98.7	101	95.8	96.2	99.7
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	103	107	107	111	103
Toluene-D8	2037-26-5	0.1	%	92.9	96.3	98.8	98.8	94.0
4-Bromofluorobenzene	460-00-4	0.1	%	100	104	104	104	100



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BM_MW04_0.5	BM_MW06_0.1	ERM TSP13	BLK	TSC
				04-DEC-2013 15:00	04-DEC-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326999-011	ES1326999-012	ES1326999-013	ES1326999-014	ES1326999-016
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	22.1	23.4	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	11	12	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	24	16	----	----	----
Copper	7440-50-8	5	mg/kg	23	38	----	----	----
Lead	7439-92-1	5	mg/kg	19	26	----	----	----
Nickel	7440-02-0	2	mg/kg	18	19	----	----	----
Zinc	7440-66-6	5	mg/kg	56	86	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	----	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	----	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	----	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BM_MW04_0.5	BM_MW06_0.1	ERM TSP13	BLK	TSC
				04-DEC-2013 15:00	04-DEC-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326999-011	ES1326999-012	ES1326999-013	ES1326999-014	ES1326999-016
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	----	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	7.3	<0.5	7.9
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	1.2	<0.5	1.3
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	6.5	<0.5	6.8
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	2.9	<0.5	2.9



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BM_MW04_0.5	BM_MW06_0.1	ERM TSP13	BLK	TSC
				04-DEC-2013 15:00	04-DEC-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326999-011	ES1326999-012	ES1326999-013	ES1326999-014	ES1326999-016
EP080: BTEXN - Continued								
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	9.4	<0.5	9.7
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	17.9	<0.2	18.9
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	73.0	72.7	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	71.7	75.6	----	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%	89.4	77.1	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	102	90.1	----	----	----
Anthracene-d10	1719-06-8	0.1	%	91.0	84.0	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	99.5	91.9	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	105	108	108	99.1	101
Toluene-D8	2037-26-5	0.1	%	94.4	98.6	94.7	90.5	91.5
4-Bromofluorobenzene	460-00-4	0.1	%	101	102	103	95.2	96.6



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_041213_HC

Client sampling date / time

04-DEC-2013 15:00

Compound	CAS Number	LOR	Unit	ES1326999-015	---	---	---	---
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EG020T: Total Metals by ICP-MS

Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---

EG035T: Total Recoverable Mercury by FIMS

Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
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EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	---	20	µg/L	<20	---	---	---	---
------------------	-----	----	------	-----	-----	-----	-----	-----

EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---

EP080: BTEXN

Benzene	71-43-2	1	µg/L	<1	---	---	---	---
Toluene	108-88-3	2	µg/L	<2	---	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	---	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	---	---	---	---
Total Xylenes	1330-20-7	2	µg/L	<2	---	---	---	---
Sum of BTEX	---	1	µg/L	<1	---	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	---	---	---	---

EP080S: TPH(V)/BTEX Surrogates

1,2-Dichloroethane-D4	17060-07-0	0.1	%	118	---	---	---	---
Toluene-D8	2037-26-5	0.1	%	106	---	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	112	---	---	---	---



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128



Our ref : ASET36532/ 39712 / 1 -

Your ref : ES1326999

NATA Accreditation No: 14484

13 December 2013

Australian Laboratory Services Pty Ltd
277 – 284 Woodpark Road
Smithfield NSW 2164

Attn: Ms Nanthini Coilparampil

Dear Nanthini

Asbestos Identification

This report presents the results of twelve samples, forwarded by Australian Laboratory Services Pty Ltd on 12 December 2013, for analysis for asbestos.

1.Introduction:Twelve samples forwarded were examined and analysed for the presence of asbestos.

2. Methods : The samples were examined under a Stereo Microscope and selected fibres were analysed by Polarized Light Microscopy in conjunction with Dispersion Staining method (**Safer Environment Method 1.**)

3. Results : **Sample No. 1. ASET36532 / 39712 / 1. ES1326999 - 001 - BM_SB01_0.5.**

Approx dimensions 7.0 cm x 6.5 cm x 3.8 cm

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, cement, glass and bitumen.

No asbestos detected.

Sample No. 2. ASET36532 / 39712 / 2. ES1326999 - 002 - BM_SB01_1.5.

Approx dimensions 7.0 cm x 6.8 cm x 3.5 cm

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster and glass.

No asbestos detected.

Sample No. 3. ASET36532 / 39712 / 3. ES1326999 - 003 - BM_SB02_0.5.

Approx dimensions 7.0 cm x 7.0 cm x 3.4 cm

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster.

No asbestos detected.

Sample No. 4. ASET36532 / 39712 / 4. ES1326999 - 004 - BM_SB03_0.5.

Approx dimensions 6.6 cm x 6.5 cm x 4.0 cm

The sample consisted of a mixture of clayish soil, stones and plant matter.

No asbestos detected.

Sample No. 5. ASET36532 / 39712 / 5. ES1326999 - 005 - BM_SB04_0.5.

Approx dimensions 6.3 cm x 6.2 cm x 3.5 cm

The sample consisted of a mixture of clayish soil, stones, plant matter, shale and fragments of plaster.

No asbestos detected.

SUITE 710 / 90 GEORGE STREET, HORNSBY NSW 2077 – P.O. BOX 1644 HORNSBY WESTFIELD NSW 1635

PHONE: (02) 99872183 FAX: (02)99872151 EMAIL: aset@bigpond.net.au WEBSITE: www.Ausset.com.au



Sample No. 6. ASET36532 / 39712 / 6. ES1326999 - 006 -BM_SB05_0.5.
Approx dimensions 7.0 cm x 6.6 cm x 3.5 cm
The sample consisted of a mixture of clayish soil, stones and plant matter.
No asbestos detected.

Sample No. 7. ASET36532 / 39712 / 7. ES1326999 - 007 - BM_SB06_0.1.
Approx dimensions 7.0 cm x 7.0 cm x 4.0 cm
The sample consisted of a mixture of clayish soil, stones and plant matter.
No asbestos detected.

Sample No. 8. ASET36532 / 39712 / 8. ES1326999 - 008 - BM_SB07_0.5.
Approx dimensions 7.0 cm x 7.0 cm x 4.2 cm
The sample consisted of a mixture of clayish soil, stones and plant matter.
No asbestos detected.

Sample No. 9. ASET36532 / 39712 / 9. ES1326999 - 009 - BM_SB08_0.5.
Approx dimensions 7.0 cm x 7.0 cm x 4.5 cm
The sample consisted of a mixture of clayish soil, stones and plant matter.
No asbestos detected.

Sample No. 10. ASET36532 / 39712 / 10. ES1326999 - 010 - BM_SB09_0.5.
Approx dimensions 7.0 cm x 7.0 cm x 4.0 cm
The sample consisted of a mixture of clayish soil, stones and plant matter.
No asbestos detected

Sample No. 11. ASET36532 / 39712 / 11. ES1326999 - 011 - BM_MW04_0.5.
Approx dimensions 7.0 cm x 7.0 cm x 4.75 cm
The sample consisted of a mixture of clayish soil, stones and plant matter.
No asbestos detected

Sample No. 12. ASET36532 / 39712 / 12. ES1326999 - 012 - BM_MW06_0.1.
Approx dimensions 7.0 cm x 7.0 cm x 4.2 cm
The sample consisted of a mixture of clayish soil, stones and plant matter.
No asbestos detected.

Analysed and reported by,

A handwritten signature in black ink, appearing to read "Nisansala Maddage", written over a horizontal line.

**Nisansala Maddage BSc (Hons)
Environmental Scientist/Approved Identifier
Approved Signatory**



**This document is issued in accordance with
NATA's Accreditation requirements. Accredited
for compliance with ISO/IEC 17025.**

QUALITY CONTROL REPORT

Work Order	: ES1326999	Page	: 1 of 20
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: AM	No. of samples received	: 16
Order number	: 0224193	No. of samples analysed	: 16
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited
Laboratory 825

Accredited for
compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories

Celine Conceicao
Phalak Inthaksone
Phalak Inthaksone

Position

Senior Spectroscopist
Laboratory Manager - Organics
Laboratory Manager - Organics

Accreditation Category

Sydney Inorganics
Sydney Inorganics
Sydney Organics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC



Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA055: Moisture Content (QC Lot: 3205934)									
ES1326930-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	14.3	13.7	4.4	0% - 50%
ES1326995-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	21.3	22.2	4.2	0% - 20%
EA055: Moisture Content (QC Lot: 3205935)									
ES1326999-007	BM_SB06_0.1	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	26.4	24.1	9.0	0% - 20%
ES1327003-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	7.5	6.4	15.1	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 3205906)									
ES1326596-001	Anonymous	EG005T: Cadmium	7440-43-9	0.4	mg/kg	<0.4	<0.4	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	6	23.8	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	8	6	34.5	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	16	12	25.3	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	10	9	16.0	No Limit
ES1326642-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	14	11	28.9	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	146	120	19.1	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	83	65	24.6	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	12	7	53.5	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 3205909)									
ES1326999-003	BM_SB02_0.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	20	21	4.9	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	76	70	8.4	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	10	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	30	31	5.1	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	22	20	8.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	84	86	2.2	0% - 50%
ES1327032-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	4	2	58.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	68	66	3.4	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	21	26	22.9	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	8	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	164	160	2.4	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	1420	1990	# 33.4	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	1310	1450	10.4	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3205907)									
ES1326596-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3205907) - continued									
ES1326642-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3205910)									
ES1326999-003	BM_SB02_0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1327032-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.1	0.2	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3205666)									
ES1326825-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326930-010	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3205558)									
ES1326995-001	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP074B: Oxygenated Compounds (QC Lot: 3205558)									
ES1326995-001	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3205558)									
ES1326995-001	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3205558)									
ES1326995-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3205558)									
ES1326995-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3205558) - continued									
ES1326995-001	Anonymous	EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
EP074F: Halogenated Aromatic Compounds (QC Lot: 3205558)									
ES1326995-001	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 3205558)									
ES1326995-001	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3205558)									
ES1326995-001	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3205653)									
ES1326999-001	BM_SB01_0.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3205653) - continued									
ES1326999-001	BM_SB01_0.5	EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1326999-011	BM_MW04_0.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit		
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3205653)									
ES1326999-001	BM_SB01_0.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3205653) - continued									
ES1326999-001	BM_SB01_0.5	EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1326999-011	BM_MW04_0.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3205552)									
ES1326999-003	BM_SB02_0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1326999-012	BM_MW06_0.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3205557)									
ES1326995-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1327001-003	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3205652)									
ES1326999-001	BM_SB01_0.5	EP071: C15 - C28 Fraction	----	100	mg/kg	140	170	14.8	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	120	130	12.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1326999-011	BM_MW04_0.5	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3205552)									
ES1326999-003	BM_SB02_0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1326999-012	BM_MW06_0.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3205557)									
ES1326995-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3205557) - continued									
ES1327001-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3205652)									
ES1326999-001	BM_SB01_0.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	220	250	11.8	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1326999-011	BM_MW04_0.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 3205552)									
ES1326999-003	BM_SB02_0.5	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1326999-012	BM_MW06_0.1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP080: BTEXN (QC Lot: 3205557)									
ES1326995-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1327001-003	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
Sub-Matrix: WATER									
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 3205426)									
ES1326678-006	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.260	0.251	3.6	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.044	0.044	0.0	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.016	0.016	0.0	No Limit
ES1326745-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.004	0.005	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.008	0.008	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3207847)									
ES1325672-002	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3207920)									
ES1326993-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1326993-007	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3207920)									
ES1326993-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1326993-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 3207920)									
ES1326993-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
		ES1326993-007	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1
EP080: Toluene	108-88-3	2		µg/L	<2	<2	0.0	No Limit	
EP080: Ethylbenzene	100-41-4	2		µg/L	<2	<2	0.0	No Limit	
EP080: meta- & para-Xylene	108-38-3 106-42-3	2		µg/L	<2	<2	0.0	No Limit	
EP080: ortho-Xylene	95-47-6	2		µg/L	<2	<2	0.0	No Limit	
EP080: Naphthalene	91-20-3	5		µg/L	<5	<5	0.0	No Limit	



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EG005T: Total Metals by ICP-AES (QCLot: 3205906)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	99.3	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	95.0	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	104	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	104	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	91.0	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	105	84	130	
EG005T: Total Metals by ICP-AES (QCLot: 3205909)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	111	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	104	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	110	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	110	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	104	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	113	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	116	81	133	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3205907)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	76.9	66	112	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3205910)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	75.3	66	112	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3205666)									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	89.0	57.4	117	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3205558)									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	75.3	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	85.1	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	75.9	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	78.5	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	81.9	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	86.4	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	77.8	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	77.4	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	78.5	61	131	
EP074B: Oxygenated Compounds (QCLot: 3205558)									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	49.8	29.6	156	
		5	mg/kg	<5	----	----	----	----	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074B: Oxygenated Compounds (QCLot: 3205558) - continued									
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	121	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	108	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	96.6	54	136	
		5	mg/kg	<5	----	----	----	----	
EP074C: Sulfonated Compounds (QCLot: 3205558)									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	69.6	54	126	
EP074D: Fumigants (QCLot: 3205558)									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	107	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	93.6	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	97.2	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	88.4	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	81.1	66	126	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3205558)									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	37.5	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	52.3	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	68.2	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	60.8	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	68.1	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	75.9	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	68.8	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	64.9	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	75.8	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	96.9	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	76.7	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	92.3	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	94.7	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	88.2	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	107	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	91.3	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	92.2	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	86.2	70	130	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3205558) - continued									
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	79.1	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	111	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	79.9	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	118	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	93.4	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	91.8	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	87.3	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	29.9	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	88.1	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	80.1	48	136	
EP074F: Halogenated Aromatic Compounds (QCLot: 3205558)									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	83.3	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	79.2	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	78.3	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	84.8	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	82.4	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	76.3	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	77.8	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	71.8	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	81.1	60	132	
EP074G: Trihalomethanes (QCLot: 3205558)									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	91.2	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	91.6	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	77.2	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	74.9	60	126	
EP074H: Naphthalene (QCLot: 3205558)									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	72.1	63	133	
		5	mg/kg	<5	----	----	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3205653)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	85.0	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	87.2	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	80.9	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	89.3	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	103	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	103	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	99.6	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	99.0	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	108	76.4	114	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 3205653) - continued									
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	76.6	57	111	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	73.1	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	44.1	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3205653)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	113	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	113	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	106	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	107	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	112	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	112	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	109	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	110	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	102	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	116	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	106	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	109	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	105	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	107	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	100	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	109	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205552)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	88.6	68.4	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205557)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	83.7	68.4	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205652)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	105	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	122	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	107	64	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205552)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	89.9	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205557)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	81.7	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205652)									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	113	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	126	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	76.4	63	131	
EP080: BTEXN (QCLot: 3205552)									



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP080: BTEXN (QCLot: 3205552) - continued									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	84.9	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	88.9	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	85.4	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	88.8	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	88.4	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	94.0	62	138	
EP080: BTEXN (QCLot: 3205557)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	86.8	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	76.6	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	79.7	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	78.1	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	80.3	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	93.7	62	138	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EG020T: Total Metals by ICP-MS (QCLot: 3205426)									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	111	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.5	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	112	83	115	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	116	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	105	85	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.3	83	117	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	111	76	118	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3207847)									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	86.5	77	115	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207920)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	115	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207920)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	116	75	127	
EP080: BTEXN (QCLot: 3207920)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	114	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	108	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	113	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	109	69	121	
	106-42-3								



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
EP080: BTEXN (QCLot: 3207920) - continued								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	110	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	106	70	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report		
				Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High
EG005T: Total Metals by ICP-AES (QCLot: 3205906)						
ES1326596-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	99.0	70 130
		EG005T: Cadmium	7440-43-9	50 mg/kg	94.4	70 130
		EG005T: Chromium	7440-47-3	50 mg/kg	99.4	70 130
		EG005T: Copper	7440-50-8	125 mg/kg	102	70 130
		EG005T: Lead	7439-92-1	125 mg/kg	93.1	70 130
		EG005T: Nickel	7440-02-0	50 mg/kg	96.3	70 130
EG005T: Total Metals by ICP-AES (QCLot: 3205909)						
ES1326999-003	BM_SB02_0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	98.2	70 130
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.9	70 130
		EG005T: Chromium	7440-47-3	50 mg/kg	99.9	70 130
		EG005T: Copper	7440-50-8	125 mg/kg	103	70 130
		EG005T: Lead	7439-92-1	125 mg/kg	94.7	70 130
		EG005T: Nickel	7440-02-0	50 mg/kg	74.1	70 130
		EG005T: Zinc	7440-66-6	125 mg/kg	103	70 130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3205907)						
ES1326596-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	81.8	70 130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3205910)						
ES1326999-003	BM_SB02_0.5	EG035T: Mercury	7439-97-6	5 mg/kg	81.5	70 130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3205666)						
ES1326825-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	93.0	70 130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3205558)						
ES1326995-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	90.8	70 130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	101	70 130
EP074F: Halogenated Aromatic Compounds (QCLot: 3205558)						
ES1326995-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	87.4	70 130
EP075(SIM)A: Phenolic Compounds (QCLot: 3205653)						



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 3205653) - continued								
ES1326999-001	BM_SB01_0.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	94.6	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	99.4	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	85.5	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	97.8	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	86.2	20	130	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3205653)								
ES1326999-001	BM_SB01_0.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	112	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	110	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205552)								
ES1326999-003	BM_SB02_0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	95.5	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205557)								
ES1326995-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	94.7	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205652)								
ES1326999-001	BM_SB01_0.5	EP071: C10 - C14 Fraction	----	640 mg/kg	74.2	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	85.4	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	73.1	52	132	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205552)								
ES1326999-003	BM_SB02_0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	94.8	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205557)								
ES1326995-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	92.2	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205652)								
ES1326999-001	BM_SB01_0.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	97.9	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	76.3	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	60.7	52	132	
EP080: BTEXN (QCLot: 3205552)								
ES1326999-003	BM_SB02_0.5	EP080: Benzene	71-43-2	2.5 mg/kg	81.4	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	87.1	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	87.8	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	87.9	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	89.8	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	88.8	70	130			
EP080: BTEXN (QCLot: 3205557)								
ES1326995-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	85.8	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	76.8	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	86.6	70	130	



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP080: BTEXN (QCLot: 3205557) - continued								
ES1326995-001	Anonymous	EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	80.3	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	77.5	70	130	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	88.5	70	130	

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EG020T: Total Metals by ICP-MS (QCLot: 3205426)								
ES1326702-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	99.4	70	130	
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	92.2	70	130	
		EG020A-T: Chromium	7440-47-3	1 mg/L	94.0	70	130	
		EG020A-T: Copper	7440-50-8	1 mg/L	102	70	130	
		EG020A-T: Lead	7439-92-1	1 mg/L	99.0	70	130	
		EG020A-T: Nickel	7440-02-0	1 mg/L	85.2	70	130	
		EG020A-T: Zinc	7440-66-6	1 mg/L	107	70	130	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3207847)								
ES1325672-003	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	93.4	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207920)								
ES1326993-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	124	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207920)								
ES1326993-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	70	130	
EP080: BTEXN (QCLot: 3207920)								
ES1326993-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	119	70	130	
		EP080: Toluene	108-88-3	25 µg/L	113	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	114	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	112	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	115	70	130	
		EP080: Naphthalene	91-20-3	25 µg/L	106	70	130	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit



Sub-Matrix: SOIL					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number								
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205552)											
ES1326999-003	BM_SB02_0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	95.5	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205552)											
ES1326999-003	BM_SB02_0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	94.8	----	70	130	----	----	
EP080: BTEXN (QCLot: 3205552)											
ES1326999-003	BM_SB02_0.5	EP080: Benzene	71-43-2	2.5 mg/kg	81.4	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	87.1	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	87.8	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	87.9	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	89.8	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	88.8	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205557)											
ES1326995-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	94.7	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205557)											
ES1326995-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	92.2	----	70	130	----	----	
EP080: BTEXN (QCLot: 3205557)											
ES1326995-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	85.8	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	76.8	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	86.6	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	80.3	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	77.5	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	88.5	----	70	130	----	----	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3205558)											
ES1326995-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	90.8	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	101	----	70	130	----	----	
EP074F: Halogenated Aromatic Compounds (QCLot: 3205558)											
ES1326995-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	87.4	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205652)											
ES1326999-001	BM_SB01_0.5	EP071: C10 - C14 Fraction	----	640 mg/kg	74.2	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	85.4	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	73.1	----	52	132	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205652)											
ES1326999-001	BM_SB01_0.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	97.9	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	76.3	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	60.7	----	52	132	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3205653)											



Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP075(SIM)A: Phenolic Compounds (QCLot: 3205653) - continued										
ES1326999-001	BM_SB01_0.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	94.6	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	99.4	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	85.5	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	97.8	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	86.2	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3205653)										
ES1326999-001	BM_SB01_0.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	112	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	110	----	70	130	----	----
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3205666)										
ES1326825-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	93.0	----	70	130	----	----
EG005T: Total Metals by ICP-AES (QCLot: 3205906)										
ES1326596-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	99.0	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	94.4	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	99.4	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	102	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	93.1	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	96.3	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3205907)										
ES1326596-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	81.8	----	70	130	----	----
EG005T: Total Metals by ICP-AES (QCLot: 3205909)										
ES1326999-003	BM_SB02_0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	98.2	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.9	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	99.9	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	103	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	94.7	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	74.1	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	103	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3205910)										
ES1326999-003	BM_SB02_0.5	EG035T: Mercury	7439-97-6	5 mg/kg	81.5	----	70	130	----	----

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EG020T: Total Metals by ICP-MS (QCLot: 3205426)										
ES1326702-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	99.4	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	92.2	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	94.0	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	102	----	70	130	----	----



Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EG020T: Total Metals by ICP-MS (QCLot: 3205426) - continued										
ES1326702-002	Anonymous	EG020A-T: Lead	7439-92-1	1 mg/L	99.0	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	85.2	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	107	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3207847)										
ES1325672-003	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	93.4	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207920)										
ES1326993-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	124	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207920)										
ES1326993-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	----	70	130	----	----
EP080: BTEXN (QCLot: 3207920)										
ES1326993-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	119	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	113	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	114	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	112	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	115	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	106	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326999	Page	: 1 of 10
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: AM	No. of samples received	: 16
Order number	: 0224193	No. of samples analysed	: 16
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA055: Moisture Content								
Soil Glass Jar - Unpreserved (EA055-103)								
BM_SB01_0.5, BM_SB02_0.5, BM_SB04_0.5, BM_SB06_0.1, BM_SB08_0.5, BM_MW04_0.5	BM_SB01_1.5, BM_SB03_0.5, BM_SB05_0.5, BM_SB07_0.5, BM_SB09_0.5, BM_MW06_0.1	04-DEC-2013	----	----	----	11-DEC-2013	18-DEC-2013	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
BM_SB01_0.5, BM_SB02_0.5, BM_SB04_0.5, BM_SB06_0.1, BM_SB08_0.5, BM_MW04_0.5	BM_SB01_1.5, BM_SB03_0.5, BM_SB05_0.5, BM_SB07_0.5, BM_SB09_0.5, BM_MW06_0.1	04-DEC-2013	11-DEC-2013	02-JUN-2014	✓	12-DEC-2013	02-JUN-2014	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
BM_SB01_0.5, BM_SB02_0.5, BM_SB04_0.5, BM_SB06_0.1, BM_SB08_0.5, BM_MW04_0.5	BM_SB01_1.5, BM_SB03_0.5, BM_SB05_0.5, BM_SB07_0.5, BM_SB09_0.5, BM_MW06_0.1	04-DEC-2013	11-DEC-2013	01-JAN-2014	✓	12-DEC-2013	01-JAN-2014	✓
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066)								
BM_SB01_1.5		04-DEC-2013	11-DEC-2013	18-DEC-2013	✓	12-DEC-2013	20-JAN-2014	✓



Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP071)								
BM_SB01_0.5, BM_SB02_0.5, BM_SB04_0.5, BM_SB06_0.1, BM_SB08_0.5, BM_MW04_0.5	BM_SB01_1.5, BM_SB03_0.5, BM_SB05_0.5, BM_SB07_0.5, BM_SB09_0.5, BM_MW06_0.1	04-DEC-2013	12-DEC-2013	18-DEC-2013	✓	12-DEC-2013	21-JAN-2014	✓
EP074D: Fumigants								
Soil Glass Jar - Unpreserved (EP074)								
BM_SB01_1.5		04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	11-DEC-2013	11-DEC-2013	✓
EP074E: Halogenated Aliphatic Compounds								
Soil Glass Jar - Unpreserved (EP074)								
BM_SB01_1.5		04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	11-DEC-2013	11-DEC-2013	✓
EP074F: Halogenated Aromatic Compounds								
Soil Glass Jar - Unpreserved (EP074)								
BM_SB01_1.5		04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	11-DEC-2013	11-DEC-2013	✓
EP074A: Monocyclic Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP074)								
BM_SB01_1.5		04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	11-DEC-2013	11-DEC-2013	✓
EP074H: Naphthalene								
Soil Glass Jar - Unpreserved (EP074)								
BM_SB01_1.5		04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	11-DEC-2013	11-DEC-2013	✓
EP074B: Oxygenated Compounds								
Soil Glass Jar - Unpreserved (EP074)								
BM_SB01_1.5		04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	11-DEC-2013	11-DEC-2013	✓
EP074C: Sulfonated Compounds								
Soil Glass Jar - Unpreserved (EP074)								
BM_SB01_1.5		04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	11-DEC-2013	11-DEC-2013	✓
EP074G: Trihalomethanes								
Soil Glass Jar - Unpreserved (EP074)								
BM_SB01_1.5		04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	11-DEC-2013	11-DEC-2013	✓
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM))								
BM_SB01_0.5, BM_SB02_0.5, BM_SB04_0.5, BM_SB06_0.1, BM_SB08_0.5, BM_MW04_0.5	BM_SB01_1.5, BM_SB03_0.5, BM_SB05_0.5, BM_SB07_0.5, BM_SB09_0.5, BM_MW06_0.1	04-DEC-2013	12-DEC-2013	18-DEC-2013	✓	12-DEC-2013	21-JAN-2014	✓



Matrix: **SOIL** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
BM_SB01_0.5, BM_SB02_0.5, BM_SB04_0.5, BM_SB06_0.1, BM_SB08_0.5, BM_MW04_0.5	BM_SB01_1.5, BM_SB03_0.5, BM_SB05_0.5, BM_SB07_0.5, BM_SB09_0.5, BM_MW06_0.1	04-DEC-2013	12-DEC-2013	18-DEC-2013	✓	12-DEC-2013	21-JAN-2014	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
BM_SB01_0.5	BM_SB01_1.5	04-DEC-2013	11-DEC-2013	18-DEC-2013	✓	11-DEC-2013	18-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080)								
BM_SB02_0.5, BM_SB04_0.5, BM_SB06_0.1, BM_SB08_0.5, BM_MW04_0.5	BM_SB03_0.5, BM_SB05_0.5, BM_SB07_0.5, BM_SB09_0.5, BM_MW06_0.1	04-DEC-2013	11-DEC-2013	18-DEC-2013	✓	12-DEC-2013	18-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080)								
ERM TSP13, TSC	BLK,	28-NOV-2013	11-DEC-2013	12-DEC-2013	✓	12-DEC-2013	12-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Soil Glass Jar - Unpreserved (EP080)								
BM_SB01_0.5	BM_SB01_1.5	04-DEC-2013	11-DEC-2013	18-DEC-2013	✓	11-DEC-2013	18-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080)								
BM_SB02_0.5, BM_SB04_0.5, BM_SB06_0.1, BM_SB08_0.5, BM_MW04_0.5	BM_SB03_0.5, BM_SB05_0.5, BM_SB07_0.5, BM_SB09_0.5, BM_MW06_0.1	04-DEC-2013	11-DEC-2013	18-DEC-2013	✓	12-DEC-2013	18-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080)								
BLK		28-NOV-2013	11-DEC-2013	12-DEC-2013	✓	12-DEC-2013	12-DEC-2013	✓

Matrix: **WATER** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EG020T: Total Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)								
R01_041213_HC		04-DEC-2013	11-DEC-2013	02-JUN-2014	✓	11-DEC-2013	02-JUN-2014	✓
EG035T: Total Recoverable Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)								
R01_041213_HC		04-DEC-2013	----	----	----	12-DEC-2013	01-JAN-2014	✓

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 Work Order : ES1326999
 Client : ENVIRO RESOURCES MANAGEMENT
 Project : Project Symphony



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) R01_041213_HC	04-DEC-2013	12-DEC-2013	18-DEC-2013	✓	12-DEC-2013	18-DEC-2013	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080) R01_041213_HC	04-DEC-2013	12-DEC-2013	18-DEC-2013	✓	12-DEC-2013	18-DEC-2013	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	15	13.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	4	29	13.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	37	10.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	39	10.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	29	6.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	37	5.4	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	29	6.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	37	5.4	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	29	6.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	37	5.4	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							



Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	1	10	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	16	12.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	16	12.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	10	10.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	10	10.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	10	10.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatle Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)



<i>Analytical Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na2SO4 and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005T: Total Metals by ICP-AES	ES1327032-001	Anonymous	Lead	7439-92-1	33.4 %	0-20%	RPD exceeds LOR based limits

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075(SIM)S: Phenolic Compound Surrogates	ES1326999-007	BM_SB06_0.1	2-Chlorophenol-D4	93951-73-6	65.2 %	66-122 %	Recovery less than lower data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1326999-008	BM_SB07_0.5	2-Chlorophenol-D4	93951-73-6	60.8 %	66-122 %	Recovery less than lower data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1326999-010	BM_SB09_0.5	2-Chlorophenol-D4	93951-73-6	58.0 %	66-122 %	Recovery less than lower data quality objective
EP080S: TPH(V)/BTEX Surrogates	ES1326999-002	BM_SB01_1.5	Toluene-D8	2037-26-5	72.6 %	73.9-132.1 %	Recovery less than lower data quality objective

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

SAMPLE RECEIPT NOTIFICATION (SRN)**Comprehensive Report**

Work Order : **ES1327001**

Client : **ENVIRO RESOURCES MANAGEMENT** **Laboratory** : Environmental Division Sydney

Contact : MR JOSEPH FERRING **Contact** : Barbara Hanna
Address : GROUND FLOOR **Address** : 277-289 Woodpark Road Smithfield
33 SAUNDERS STREET, PYRMONT NSW Australia 2164
NSW 2009
LOCKED BAG 24
BROADWAY NSW, AUSTRALIA 2007

E-mail : joseph.ferring@erm.com **E-mail** : Barbara.Hanna@alsglobal.com
Telephone : +61 02 8584 8888 **Telephone** : +61 2 8784 8555
Facsimile : +61 02 8584 8800 **Facsimile** : +61 2 8784 8555

Project : Project Symphony **Page** : 1 of 2

Order number : 0224193

C-O-C number : ---- **Quote number** : ES2013ENVRES0369 (SY/794/13)

Site : BAYSWATER

Sampler : JG **QC Level** : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 10-DEC-2013 **Issue Date** : 10-DEC-2013 20:40
Client Requested Due Date : 13-DEC-2013 **Scheduled Reporting Date** : **13-DEC-2013**

Delivery Details

Mode of Delivery : Carrier **Temperature** : 4.9°C - Ice present
No. of coolers/boxes : 1 HARD **No. of samples received** : 3
Security Seal : Intact. **No. of samples analysed** : 3

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-27 TRH/BTEX/NIPAH/Phenols/8Metals
ES1327001-001	04-DEC-2013 15:00	BF_SB03_3.0	✓
ES1327001-002	04-DEC-2013 15:00	BF_SB01_1.8	✓
ES1327001-003	04-DEC-2013 15:00	BF_SB02_1.3	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA) Email joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email joseph.ferring@erm.com
- Chain of Custody (CoC) (COC) Email joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG) Email joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM) Email joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT) Email joseph.ferring@erm.com
- EDI Format - XTab (XTAB) Email joseph.ferring@erm.com

SYMPHONY MACGEN

- *AU Certificate of Analysis - NATA (COA) Email symphony.macgen@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email symphony.macgen@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email symphony.macgen@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email symphony.macgen@erm.com
- Chain of Custody (CoC) (COC) Email symphony.macgen@erm.com
- EDI Format - ENMRG (ENMRG) Email symphony.macgen@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM) Email symphony.macgen@erm.com
- EDI Format - ESDAT (ESDAT) Email symphony.macgen@erm.com
- EDI Format - XTab (XTAB) Email symphony.macgen@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV) Email au.accounts@erm.com

CERTIFICATE OF ANALYSIS

Work Order : ES1327001 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : Project Symphony Order number : 0224193 C-O-C number : ---- Sampler : JG Site : BAYSWATER Quote number : SY/794/13	Page : 1 of 6 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 10-DEC-2013 Issue Date : 16-DEC-2013 No. of samples received : 3 No. of samples analysed : 3
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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825
 Accredited for compliance with
 ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Phalak Inthaksono	Laboratory Manager - Organics	Sydney Organics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BF_SB03_3.0	BF_SB01_1.8	BF_SB02_1.3	---	---
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1327001-001	ES1327001-002	ES1327001-003	---	---
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	---	1.0	%	11.9	11.9	10.8	---	---
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	7	17	---	---
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	---	---
Chromium	7440-47-3	2	mg/kg	6	10	10	---	---
Copper	7440-50-8	5	mg/kg	<5	<5	8	---	---
Lead	7439-92-1	5	mg/kg	6	9	17	---	---
Nickel	7440-02-0	2	mg/kg	2	4	14	---	---
Zinc	7440-66-6	5	mg/kg	16	20	64	---	---
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	---	---
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	---	---
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	---	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BF_SB03_3.0	BF_SB01_1.8	BF_SB02_1.3	---	---
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1327001-001	ES1327001-002	ES1327001-003	---	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	---	---
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	---	---
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	---	---
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	---	---
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	---	---
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	---	---
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	---	---
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	---	---
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	---	---
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	---	---
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	---	---
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	---	---
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				BF_SB03_3.0	BF_SB01_1.8	BF_SB02_1.3	----	----
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1327001-001	ES1327001-002	ES1327001-003	----	----
EP080: BTEXN - Continued								
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	72.4	69.7	68.5	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	78.4	77.8	72.0	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%	76.3	77.0	74.7	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	102	98.1	94.2	----	----
Anthracene-d10	1719-06-8	0.1	%	89.8	89.7	89.4	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	96.3	96.8	97.8	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	118	123	115	----	----
Toluene-D8	2037-26-5	0.1	%	81.9	81.2	83.3	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	83.5	81.5	79.0	----	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

QUALITY CONTROL REPORT

Work Order	: ES1327001	Page	: 1 of 11
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: JG	No. of samples received	: 3
Order number	: 0224193	No. of samples analysed	: 3
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited
Laboratory 825

Accredited for
compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories

Celine Conceicao
Phalak Inthaksone

Position

Senior Spectroscopist
Laboratory Manager - Organics

Accreditation Category

Sydney Inorganics
Sydney Organics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC



Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA055: Moisture Content (QC Lot: 3205935)									
ES1326999-007	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	26.4	24.1	9.0	0% - 20%
ES1327003-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	7.5	6.4	15.1	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 3208661)									
ES1326990-007	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	9	17	64.9	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	7	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	7	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	12	21	53.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	12	13	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	185	195	5.0	0% - 20%
ES1327003-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	20	17	17.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	20	17	12.7	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	14	14	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	6	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	9	23.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	32	28	11.4	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3208662)									
ES1326990-007	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1327003-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3205664)									
ES1326825-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	2.2	2.5	11.5	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	0.8	0.7	16.8	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1326930-010	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3205664) - continued									
ES1326930-010	Anonymous	EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3205664)									
ES1326825-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	0.7	0.7	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	0.7	0.7	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1326930-010	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3205664) - continued										
ES1326930-010	Anonymous	EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3205557)										
ES1326995-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1327001-003	BF_SB02_1.3	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3205663)										
ES1326825-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	180	190	6.5	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	160	150	8.5	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
ES1326930-010	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3205557)										
ES1326995-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1327001-003	BF_SB02_1.3	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3205663)										
ES1326825-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	310	290	6.8	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1326930-010	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
EP080: BTEXN (QC Lot: 3205557)										
ES1326995-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1327001-003	BF_SB02_1.3	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 3205557) - continued									
ES1327001-003	BF_SB02_1.3	EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EG005T: Total Metals by ICP-AES (QCLot: 3208661)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	106	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	101	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	101	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	107	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	107	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	111	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	119	81	133	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3208662)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	75.0	66	112	
EP075(SIM)A: Phenolic Compounds (QCLot: 3205664)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	103	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	98.3	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	102	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	111	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	92.8	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	106	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	99.0	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	99.4	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	95.9	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	65.1	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	73.9	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	# 82.8	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3205664)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	91.5	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	112	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	109	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	112	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	113	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	111	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	112	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	111	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	108	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	114	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	111	70	118	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3205664) - continued									
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	96.9	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	107	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	97.7	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	94.9	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	97.4	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205557)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	83.7	68.4	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205663)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	99.3	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	97.4	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	93.9	64	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205557)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	81.7	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205663)									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	99.1	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	95.9	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	87.2	63	131	
EP080: BTEXN (QCLot: 3205557)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	86.8	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	76.6	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	79.7	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	78.1	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	80.3	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	93.7	62	138	

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	
EG005T: Total Metals by ICP-AES (QCLot: 3208661)								
ES1326990-007	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	102	70	130	
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.4	70	130	
		EG005T: Chromium	7440-47-3	50 mg/kg	128	70	130	



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EG005T: Total Metals by ICP-AES (QCLot: 3208661) - continued								
ES1326990-007	Anonymous	EG005T: Copper	7440-50-8	125 mg/kg	110	70	130	
		EG005T: Lead	7439-92-1	125 mg/kg	101	70	130	
		EG005T: Nickel	7440-02-0	50 mg/kg	126	70	130	
		EG005T: Zinc	7440-66-6	125 mg/kg	94.0	70	130	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3208662)								
ES1326990-007	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	79.4	70	130	
EP075(SIM)A: Phenolic Compounds (QCLot: 3205664)								
ES1326825-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	96.8	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	98.2	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	93.7	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	91.6	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	85.5	20	130	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3205664)								
ES1326825-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	106	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	107	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205557)								
ES1326995-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	94.7	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205663)								
ES1326825-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	74.3	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	81.8	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	74.5	52	132	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205557)								
ES1326995-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	92.2	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205663)								
ES1326825-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	98.5	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	78.8	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	60.5	52	132	
EP080: BTEXN (QCLot: 3205557)								
ES1326995-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	85.8	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	76.8	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	86.6	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	80.3	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	77.5	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	88.5	70	130			



Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205557)											
ES1326995-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	94.7	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205557)											
ES1326995-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	92.2	----	70	130	----	----	
EP080: BTEXN (QCLot: 3205557)											
ES1326995-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	85.8	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	76.8	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	86.6	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	80.3	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	77.5	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	88.5	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205663)											
ES1326825-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	74.3	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	81.8	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	74.5	----	52	132	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205663)											
ES1326825-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	98.5	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	78.8	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	60.5	----	52	132	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3205664)											
ES1326825-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	96.8	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	98.2	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	93.7	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	91.6	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	85.5	----	20	130	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3205664)											
ES1326825-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	106	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	107	----	70	130	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3208661)											
ES1326990-007	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	102	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.4	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	128	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	110	----	70	130	----	----	



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EG005T: Total Metals by ICP-AES (QCLot: 3208661) - continued										
ES1326990-007	Anonymous	EG005T: Lead	7439-92-1	125 mg/kg	101	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	126	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	94.0	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3208662)										
ES1326990-007	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	79.4	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1327001	Page	: 1 of 5
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: JG	No. of samples received	: 3
Order number	: 0224193	No. of samples analysed	: 3
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA055: Moisture Content								
Soil Glass Jar - Unpreserved (EA055-103) BF_SB03_3.0, BF_SB02_1.3	BF_SB01_1.8,	04-DEC-2013	----	----	----	11-DEC-2013	18-DEC-2013	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T) BF_SB03_3.0, BF_SB02_1.3	BF_SB01_1.8,	04-DEC-2013	12-DEC-2013	02-JUN-2014	✓	12-DEC-2013	02-JUN-2014	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T) BF_SB03_3.0, BF_SB02_1.3	BF_SB01_1.8,	04-DEC-2013	12-DEC-2013	01-JAN-2014	✓	13-DEC-2013	01-JAN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Soil Glass Jar - Unpreserved (EP071) BF_SB03_3.0, BF_SB02_1.3	BF_SB01_1.8,	04-DEC-2013	11-DEC-2013	18-DEC-2013	✓	12-DEC-2013	20-JAN-2014	✓
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM)) BF_SB03_3.0, BF_SB02_1.3	BF_SB01_1.8,	04-DEC-2013	11-DEC-2013	18-DEC-2013	✓	12-DEC-2013	20-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) BF_SB03_3.0, BF_SB02_1.3	BF_SB01_1.8,	04-DEC-2013	11-DEC-2013	18-DEC-2013	✓	12-DEC-2013	20-JAN-2014	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) BF_SB03_3.0, BF_SB02_1.3	BF_SB01_1.8,	04-DEC-2013	11-DEC-2013	18-DEC-2013	✓	11-DEC-2013	18-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Soil Glass Jar - Unpreserved (EP080) BF_SB03_3.0, BF_SB02_1.3	BF_SB01_1.8,	04-DEC-2013	11-DEC-2013	18-DEC-2013	✓	11-DEC-2013	18-DEC-2013	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075(SIM)A: Phenolic Compounds	3826436-007	----	Pentachlorophenol	87-86-5	82.8 %	3.9-57%	Recovery greater than upper control limit

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Matrix Spike outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1327003

Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
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E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800	E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555
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Project : Project Symphony Order number : 0224193 C-O-C number : ---- Site : BAYSWATER Sampler : JG	Page : 1 of 2 Quote number : ES2013ENVRES0369 (SY/794/13) QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement
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Dates

Date Samples Received : 10-DEC-2013 Client Requested Due Date : 13-DEC-2013	Issue Date : 10-DEC-2013 20:59 Scheduled Reporting Date : 13-DEC-2013
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Delivery Details

Mode of Delivery : Carrier No. of coolers/boxes : 1 HARD Security Seal : Intact.	Temperature : 4.5°C - Ice present No. of samples received : 11 No. of samples analysed : 8
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General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- Asbestos analysis will be subcontracted to ASET.
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - ASB-SOL (Subcontracted) Asbestos - Count (Solid)	SOIL - S-27 TRH/BTEX/NIPAH/Phenols/8Metals
ES1327003-001	03-DEC-2013 15:00	BF_MW01_0.4-0.5	✓	✓
ES1327003-002	03-DEC-2013 15:00	BF_MW01_1.8-1.9		✓
ES1327003-003	03-DEC-2013 15:00	BF_SB04_0.4-0.5	✓	✓
ES1327003-004	03-DEC-2013 15:00	BF_SB03_0.1-0.2	✓	
ES1327003-005	03-DEC-2013 15:00	BF_SB03_0.4-0.5		✓
ES1327003-006	03-DEC-2013 15:00	BF_MW03_0.4-0.5	✓	✓
ES1327003-007	03-DEC-2013 15:00	BF_MW02_0.1-0.2	✓	
ES1327003-008	03-DEC-2013 15:00	BF_MW04_0.1-0.2	✓	✓
ES1327003-009	03-DEC-2013 15:00	BF_SB02_0.1-0.2	✓	✓
ES1327003-010	03-DEC-2013 15:00	BF_SB01_0.4-0.5		✓
ES1327003-011	03-DEC-2013 15:00	BF_SB01_0.1-0.2	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA)	Email	joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	joseph.ferring@erm.com
- Attachment - Report (SUBCO)	Email	joseph.ferring@erm.com
- Chain of Custody (CoC) (COC)	Email	joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	joseph.ferring@erm.com
- EDI Format - XTab (XTAB)	Email	joseph.ferring@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
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CERTIFICATE OF ANALYSIS

Work Order : ES1327003 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : Project Symphony Order number : 0224193 C-O-C number : ---- Sampler : JG Site : BAYSWATER Quote number : SY/794/13	Page : 1 of 9 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 10-DEC-2013 Issue Date : 16-DEC-2013 No. of samples received : 11 No. of samples analysed : 8
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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825
 Accredited for compliance with
 ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Phalak Inthaksono	Laboratory Manager - Organics	Sydney Organics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BF_MW01_0.4-0.5	BF_MW01_1.8-1.9	BF_SB04_0.4-0.5	BF_SB03_0.4-0.5	BF_MW03_0.4-0.5
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00
				ES1327003-001	ES1327003-002	ES1327003-003	ES1327003-005	ES1327003-006
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	18.9	7.5	17.3	19.6	19.2
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	8	14	10	12	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	30	20	15	17	7
Copper	7440-50-8	5	mg/kg	8	7	8	8	<5
Lead	7439-92-1	5	mg/kg	9	11	13	8	8
Nickel	7440-02-0	2	mg/kg	18	20	10	23	8
Zinc	7440-66-6	5	mg/kg	18	32	43	24	31
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BF_MW01_0.4-0.5	BF_MW01_1.8-1.9	BF_SB04_0.4-0.5	BF_SB03_0.4-0.5	BF_MW03_0.4-0.5
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327003-001	ES1327003-002	ES1327003-003	ES1327003-005	ES1327003-006
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BF_MW01_0.4-0.5	BF_MW01_1.8-1.9	BF_SB04_0.4-0.5	BF_SB03_0.4-0.5	BF_MW03_0.4-0.5
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327003-001	ES1327003-002	ES1327003-003	ES1327003-005	ES1327003-006
EP080: BTEXN - Continued								
Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	78.1	72.2	76.1	62.0	72.8
2-Chlorophenol-D4	93951-73-6	0.1	%	81.2	80.0	83.3	61.5	56.1
2,4,6-Tribromophenol	118-79-6	0.1	%	78.9	77.9	95.0	80.1	75.5
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	96.1	106	109	85.8	89.6
Anthracene-d10	1719-06-8	0.1	%	87.9	87.5	88.4	86.2	83.9
4-Terphenyl-d14	1718-51-0	0.1	%	98.2	95.2	97.5	96.3	92.3
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	121	125	118	122	126
Toluene-D8	2037-26-5	0.1	%	81.9	86.4	80.7	77.4	76.1
4-Bromofluorobenzene	460-00-4	0.1	%	75.3	87.9	81.2	74.9	82.4



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				BF_MW04_0.1-0.2	BF_SB02_0.1-0.2	BF_SB01_0.4-0.5	---	---
Client sampling date / time				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1327003-008	ES1327003-009	ES1327003-010	---	---

EA055: Moisture Content

Moisture Content (dried @ 103°C)	---	1.0	%	4.0	6.7	20.6	---	---
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EG005T: Total Metals by ICP-AES

Arsenic	7440-38-2	5	mg/kg	<5	<5	12	---	---
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	---	---
Chromium	7440-47-3	2	mg/kg	12	10	13	---	---
Copper	7440-50-8	5	mg/kg	6	9	6	---	---
Lead	7439-92-1	5	mg/kg	8	8	14	---	---
Nickel	7440-02-0	2	mg/kg	9	4	8	---	---
Zinc	7440-66-6	5	mg/kg	46	41	37	---	---

EG035T: Total Recoverable Mercury by FIMS

Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	---	---
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EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	---	---
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	---	---

EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BF_MW04_0.1-0.2	BF_SB02_0.1-0.2	BF_SB01_0.4-0.5	----	----
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1327003-008	ES1327003-009	ES1327003-010	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

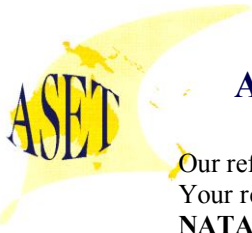
Client sample ID

				BF_MW04_0.1-0.2	BF_SB02_0.1-0.2	BF_SB01_0.4-0.5	----	----
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1327003-008	ES1327003-009	ES1327003-010	----	----
EP080: BTEXN - Continued								
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	76.2	68.2	67.8	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	91.7	74.5	52.5	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%	78.8	78.2	77.2	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	110	102	78.8	----	----
Anthracene-d10	1719-06-8	0.1	%	87.6	86.9	86.9	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	95.7	94.6	95.8	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	133	124	130	----	----
Toluene-D8	2037-26-5	0.1	%	91.0	88.5	90.3	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	90.5	87.9	89.9	----	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0



AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD

ABN 36 088 095 112

Our ref : ASET36535/ 39715 / 1 - 8

Your ref : ES1327003

NATA Accreditation No: 14484

12 December 2013

Australian Laboratory Services Pty Ltd
277, Woodpark Road
Smithfield
NSW 2164

Attn: Ms Nanthini Coilparampil

Dear Nanthini

Asbestos Identification

This report presents the results of eight samples, forwarded by Australian Laboratory Services Pty Ltd on 11 December 2013, for analysis for asbestos.

1. Introduction: Eight samples forwarded were examined and analysed for the presence of asbestos.

2. Methods : The samples were examined under a Stereo Microscope and selected fibres were analysed by Polarized Light Microscopy in conjunction with Dispersion Staining method (**Safer Environment Method 1.**)

3. Results : **Sample No. 1. ASET36535 / 39715 / 1. ES1327003 -001BF - MW01 - 0.4 - 0.5.**

Approx dimensions 10.0 cm x 8.0 cm x 5.25 cm

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster and brick like material.

No asbestos detected.

Sample No. 2. ASET36535 / 39715 / 2. ES1327003 -003 - BF - SB04 - 0.4 - 0.5.

Approx dimensions 10.0 cm x 8.0 cm x 5.0 cm

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster and brick.

No asbestos detected.

Sample No. 3. ASET36535 / 39715 / 3. ES1327003 -004 - BF - SB03 - 0.1 - 0.2.

Approx dimensions 10.0 cm x 8.0 cm x 4.75 cm

The sample consisted of a mixture of clayish soil, stones and fragments of plaster, shale, bitumin and brick.

No asbestos detected.

Sample No. 4. ASET36535 / 39715 / 4. ES1327003 -006 - BF - MW03 - 0.4 - 0.5.

Approx dimensions 10.0 cm x 7.5 cm x 5.0 cm

The sample consisted of a mixture of sandy clayish soil, stones, plant matter and fragments of plaster.

No asbestos detected.

Sample No. 5. ASET36535 / 39715 / 5. ES1327003 -007 - BF - MW02 - 0.1 - 0.2.

Approx dimensions 10.0 cm x 8.0 cm x 4.65 cm

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of bitumen and plaster..

No asbestos detected.

SUITE 710 / 90 GEORGE STREET, HORNSBY NSW 2077 – P.O. BOX 1644 HORNSBY WESTFIELD NSW 1635

PHONE: (02) 99872183 FAX: (02) 99872151 EMAIL: aset@bigpond.net.au WEBSITE: www.Ausset.com.au

OCCUPATIONAL HEALTH & SAFETY STUDIES • INDOOR AIR QUALITY SURVEYS • HAZARDOUS MATERIAL SURVEYS • RADIATION SURVEYS • ASBESTOS SURVEYS
ASBESTOS DETECTION & IDENTIFICATION • REPAIR & CALIBRATION OF SCIENTIFIC EQUIPMENT • AIRBORNE FIBRE & SILICA MONITORING

The logo for ASET (Asbestos Sampling and Testing) features the word "ASET" in a bold, blue, serif font. The letters are set against a yellow background that is shaped like a stylized, curved banner or ribbon.

Sample No. 6. ASET36535 / 39715 / 6. ES1327003 -001BF - MW01 - 0.4 - 0.5.

Approx dimensions 10.0 cm x 8.0 cm x 4.25 cm

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster.

No asbestos detected.

Sample No. 7. ASET36535 / 39715 / 7. ES1327003 -009 - BF - SB02 - 0.1 - 0.2.

Approx dimensions 10.0 cm x 8.0 cm x 4.5 cm

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster and bitumen.

No asbestos detected.

Sample No. 8. ASET36535 / 39715 / 8. ES1327003 -011 - BF - SB01 - 0.1 - 0.2.

Approx dimensions 10.0 cm x 8.0 cm x 4.65 cm

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster and bitumen.

No asbestos detected.

Analysed and reported by,

A handwritten signature in black ink, appearing to read "Mahen De Silva". The signature is written in a cursive style with a long horizontal stroke at the end.

**Mahen De Silva. BSc, MSc, Grad Dip (Occ Hyg)
Occupational Hygienist / Approved Identifier.
Approved Signatory**



**This document is issued in accordance with
NATA's Accreditation requirements. Accredited
for compliance with ISO/IEC 17025.**

QUALITY CONTROL REPORT

Work Order	: ES1327003	Page	: 1 of 11
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: JG	No. of samples received	: 11
Order number	: 0224193	No. of samples analysed	: 8
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited
Laboratory 825

Accredited for
compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories

Celine Conceicao
Phalak Inthaksone

Position

Senior Spectroscopist
Laboratory Manager - Organics

Accreditation Category

Sydney Inorganics
Sydney Organics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC



Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA055: Moisture Content (QC Lot: 3205935)									
ES1326999-007	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	26.4	24.1	9.0	0% - 20%
ES1327003-002	BF_MW01_1.8-1.9	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	7.5	6.4	15.1	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 3208661)									
ES1326990-007	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	9	17	64.9	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	7	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	7	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	12	21	53.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	12	13	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	185	195	5.0	0% - 20%
ES1327003-002	BF_MW01_1.8-1.9	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	20	17	17.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	20	17	12.7	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	14	14	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	6	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	9	23.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	32	28	11.4	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3208662)									
ES1326990-007	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1327003-002	BF_MW01_1.8-1.9	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3205653)									
ES1326999-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1326999-011	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3205653) - continued									
ES1326999-011	Anonymous	EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3205653)									
ES1326999-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1326999-011	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Page : 6 of 11
 Work Order : ES1327003
 Client : ENVIRO RESOURCES MANAGEMENT
 Project : Project Symphony



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 3205557) - continued									
ES1327001-003	Anonymous	EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EG005T: Total Metals by ICP-AES (QCLot: 3208661)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	106	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	101	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	101	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	107	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	107	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	111	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	119	81	133	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3208662)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	75.0	66	112	
EP075(SIM)A: Phenolic Compounds (QCLot: 3205653)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	85.0	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	87.2	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	80.9	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	89.3	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	103	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	103	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	99.6	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	99.0	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	108	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	76.6	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	73.1	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	44.1	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3205653)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	113	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	113	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	106	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	107	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	112	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	112	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	109	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	110	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	102	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	116	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	106	70	118	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3205653) - continued								
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	109	77	123
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	105	76	122
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	107	71	113
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	100	71.7	113
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	109	72.4	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205557)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	83.7	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205652)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	105	71	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	122	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	107	64	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205557)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	81.7	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205652)								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	113	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	126	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
		50	mg/kg	----	150 mg/kg	76.4	63	131
EP080: BTEXN (QCLot: 3205557)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	86.8	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	76.6	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	79.7	58	118
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	78.1	60	120
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	80.3	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	93.7	62	138

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
						Low	High
EG005T: Total Metals by ICP-AES (QCLot: 3208661)							
ES1326990-007	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	102	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.4	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	128	70	130



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EG005T: Total Metals by ICP-AES (QCLot: 3208661) - continued								
ES1326990-007	Anonymous	EG005T: Copper	7440-50-8	125 mg/kg	110	70	130	
		EG005T: Lead	7439-92-1	125 mg/kg	101	70	130	
		EG005T: Nickel	7440-02-0	50 mg/kg	126	70	130	
		EG005T: Zinc	7440-66-6	125 mg/kg	94.0	70	130	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3208662)								
ES1326990-007	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	79.4	70	130	
EP075(SIM)A: Phenolic Compounds (QCLot: 3205653)								
ES1326999-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	94.6	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	99.4	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	85.5	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	97.8	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	86.2	20	130	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3205653)								
ES1326999-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	112	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	110	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205557)								
ES1326995-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	94.7	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205652)								
ES1326999-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	74.2	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	85.4	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	73.1	52	132	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205557)								
ES1326995-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	92.2	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205652)								
ES1326999-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	97.9	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	76.3	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	60.7	52	132	
EP080: BTEXN (QCLot: 3205557)								
ES1326995-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	85.8	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	76.8	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	86.6	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	80.3	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	77.5	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	88.5	70	130			



Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205557)											
ES1326995-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	94.7	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205557)											
ES1326995-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	92.2	----	70	130	----	----	
EP080: BTEXN (QCLot: 3205557)											
ES1326995-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	85.8	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	76.8	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	86.6	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	80.3	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	77.5	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	88.5	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205652)											
ES1326999-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	74.2	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	85.4	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	73.1	----	52	132	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205652)											
ES1326999-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	97.9	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	76.3	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	60.7	----	52	132	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3205653)											
ES1326999-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	94.6	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	99.4	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	85.5	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	97.8	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	86.2	----	20	130	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3205653)											
ES1326999-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	112	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	110	----	70	130	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3208661)											
ES1326990-007	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	102	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.4	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	128	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	110	----	70	130	----	----	

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 Work Order : ES1327003
 Client : ENVIRO RESOURCES MANAGEMENT
 Project : Project Symphony



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EG005T: Total Metals by ICP-AES (QCLot: 3208661) - continued										
ES1326990-007	Anonymous	EG005T: Lead	7439-92-1	125 mg/kg	101	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	126	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	94.0	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3208662)										
ES1326990-007	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	79.4	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1327003	Page	: 1 of 6
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: JG	No. of samples received	: 11
Order number	: 0224193	No. of samples analysed	: 8
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA055: Moisture Content								
Soil Glass Jar - Unpreserved (EA055-103) BF_MW01_0.4-0.5, BF_SB04_0.4-0.5, BF_MW03_0.4-0.5, BF_SB02_0.1-0.2,	BF_MW01_1.8-1.9, BF_SB03_0.4-0.5, BF_MW04_0.1-0.2, BF_SB01_0.4-0.5	03-DEC-2013	----	----	----	11-DEC-2013	17-DEC-2013	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T) BF_MW01_0.4-0.5, BF_SB04_0.4-0.5, BF_MW03_0.4-0.5, BF_SB02_0.1-0.2,	BF_MW01_1.8-1.9, BF_SB03_0.4-0.5, BF_MW04_0.1-0.2, BF_SB01_0.4-0.5	03-DEC-2013	12-DEC-2013	01-JUN-2014	✓	12-DEC-2013	01-JUN-2014	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T) BF_MW01_0.4-0.5, BF_SB04_0.4-0.5, BF_MW03_0.4-0.5, BF_SB02_0.1-0.2,	BF_MW01_1.8-1.9, BF_SB03_0.4-0.5, BF_MW04_0.1-0.2, BF_SB01_0.4-0.5	03-DEC-2013	12-DEC-2013	31-DEC-2013	✓	13-DEC-2013	31-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Soil Glass Jar - Unpreserved (EP071) BF_MW01_0.4-0.5, BF_SB04_0.4-0.5, BF_MW03_0.4-0.5, BF_SB02_0.1-0.2,	BF_MW01_1.8-1.9, BF_SB03_0.4-0.5, BF_MW04_0.1-0.2, BF_SB01_0.4-0.5	03-DEC-2013	12-DEC-2013	17-DEC-2013	✓	12-DEC-2013	21-JAN-2014	✓
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM)) BF_MW01_0.4-0.5, BF_SB04_0.4-0.5, BF_MW03_0.4-0.5, BF_SB02_0.1-0.2,	BF_MW01_1.8-1.9, BF_SB03_0.4-0.5, BF_MW04_0.1-0.2, BF_SB01_0.4-0.5	03-DEC-2013	12-DEC-2013	17-DEC-2013	✓	12-DEC-2013	21-JAN-2014	✓



Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
BF_MW01_0.4-0.5, BF_SB04_0.4-0.5, BF_MW03_0.4-0.5, BF_SB02_0.1-0.2,	BF_MW01_1.8-1.9, BF_SB03_0.4-0.5, BF_MW04_0.1-0.2, BF_SB01_0.4-0.5	03-DEC-2013	12-DEC-2013	17-DEC-2013	✓	12-DEC-2013	21-JAN-2014	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
BF_MW01_0.4-0.5, BF_SB04_0.4-0.5, BF_MW03_0.4-0.5, BF_SB02_0.1-0.2,	BF_MW01_1.8-1.9, BF_SB03_0.4-0.5, BF_MW04_0.1-0.2, BF_SB01_0.4-0.5	03-DEC-2013	11-DEC-2013	17-DEC-2013	✓	11-DEC-2013	17-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Soil Glass Jar - Unpreserved (EP080)								
BF_MW01_0.4-0.5, BF_SB04_0.4-0.5, BF_MW03_0.4-0.5, BF_SB02_0.1-0.2,	BF_MW01_1.8-1.9, BF_SB03_0.4-0.5, BF_MW04_0.1-0.2, BF_SB01_0.4-0.5	03-DEC-2013	11-DEC-2013	17-DEC-2013	✓	11-DEC-2013	17-DEC-2013	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075(SIM)S: Phenolic Compound Surrogates	ES1327003-005	BF_SB03_0.4-0.5	Phenol-d6	13127-88-3	62.0 %	63-123 %	Recovery less than lower data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1327003-005	BF_SB03_0.4-0.5	2-Chlorophenol-D4	93951-73-6	61.5 %	66-122 %	Recovery less than lower data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1327003-006	BF_MW03_0.4-0.5	2-Chlorophenol-D4	93951-73-6	56.1 %	66-122 %	Recovery less than lower data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1327003-010	BF_SB01_0.4-0.5	2-Chlorophenol-D4	93951-73-6	52.5 %	66-122 %	Recovery less than lower data quality objective

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.



Monitoring_Zone	SampleCode	Field_ID	Sampled_Date-Time	LocCode	ANALYSE FOR
BA	ES1324729001	BA_MW01_0.1	7/4/2013 15:00	BA_MW01	TOC, PSD, pH, CEC
1 BH	ES1325842013	BH_SB07_0.2	26/11/2013 15:00	BH_SB07	TOC
2 BI	ES1325883001	BI_MW03_0.6	20/11/2013 15:00	BI_MW03	PSD, TOC
3 BN	ES1325842015	BP_MW01_0.25	26/11/2013 15:00	BP_MW01	TOC, PSD and pH
4 BV	ES1325842009	BV_SB07_0.25	25/11/2013 15:00	BV_SB07	TOC, pH
5 BE	ES1325842049	BE_MW09_0.9	26/11/2013 15:00	BE_MW09	TOC, PSD, pH, CEC
6 BK	ES1324839004	BK_SB06_0.6	14/11/2013 15:00	BK_SB06	TOC, PSD, pH, CEC
7 BL	ES1325842001	BL_SB01_0.25	26/11/2013 15:00	BL_SB01	TOC, PSD, pH, CEC
8 BX	ES1325842024	BX_MW02_0.5	26/11/2013 15:00	BX_MW02	TOC, PSD, pH, CEC
9 BM	ES1326999-001	BM_SB01_0.5	4/12/2013 15:00	BM_SB01	TOC, PSD, pH, CEC
10 LA	ES1325889001	LA_MW02_1.0	22/11/2013 15:00	LA_MW02	TOC, PSD, pH, CEC
11 LE	ES1325889002	LE_SB01_1.0	22/11/2013 15:00	LE_SB01	TOC, PSD, pH, CEC
12 LF	ES1325458005	LF_SB02_0.1	21/11/2013 15:00	LF_SB02	TOC, PSD, pH, CEC
13 LI	ES1324841008	LI_MW08_0.5	15/11/2013 15:00	LI_MW08	TOC, PSD, pH, CEC
14 LL	ES1326683003	LL_SB12_0.5	30/11/2013 15:00	LL_SB12	TOC, PSD, pH, CEC
15 LM	ES1324724003	LM_MW02_0.5	11/11/2013 15:00	LM_MW02	TOC, PSD, pH, CEC
16 LN	ES1324460008	LN_MW03_0.5	8/11/2013 15:00	LN_MW03	TOC, PSD, pH, CEC
17 LO	ES1324727011	LO_SB01_0.5	12/11/2013 15:00	LO_SB01	TOC, PSD, pH, CEC
18 LP	ES1326686005	LP_MW06_1.0	2/12/2013 15:00	LP_MW06	TOC, PSD, pH, CEC
19 LQ	ES1325885002	LQ_MW07_0.5	19/11/2013 15:00	LQ_MW07	TOC, PSD, pH, CEC
20 LR	ES1324724004	LR_MW04_0.5	11/11/2013 15:00	LR_MW04	TOC, PSD, pH, CEC
21 LS	ES1326686011	LS_MW01_0.5	2/12/2013 15:00	LS_MW01	TOC, PSD, pH, CEC
22 LG	ES1324840004	LT_MW04_0.1	16/4/2013 15:00	LT_MW04	TOC, PSD, pH, CEC
23 LD	ES1326685-009	LG_MW03_0.5	2/12/2013 0:00	LG_MW03	TOC, PSD, pH, CEC
24 LU	ES1325838-001	LD_MW05_2.0	25/11/2013 9:05	LD_MW05	TOC, PSD, pH, CEC
		LU_SB02_0.1	2/4/2013 0:00	LU_SB02	TOC, PSD, pH, CEC
		LJ_SB07_0.8	4/12/2013 16:10	LJ_SB07	TOC, PSD, pH, CEC

550-51
5217-219
5185
5217-214
"
"
574
5217-219
"
5320
5194
"
5130-172
371
506
5283
547
55-7
551-52
5282
5186
547
5282
571-72
5294-285
5211
5721

only in 13/12/13

500s

Subs / Forward Lab / Split WO
Lab / Analysis: PSD A/S New Castle
Organised By / Date: _____
Relinquished By / Date: _____
Connote / Courier: _____
WO No: _____
Attach By PO / Internal Sheet: _____

Rec: Steven
13/12/13 11:30

Fadi Soro

From: Joseph Ferring <Joseph.Ferring@erm.com>
Sent: Friday, 13 December 2013 10:50 AM
To: Fadi Soro
Cc: ERM Australia Project Symphony MacGen; Barbara Hanna
Subject: RE: pH, CEC, PSD, TOC

Hi Fadi, sorry for the confusion.

26 Sample LU_SB02_0.1 corresponds with lab ID ES1326685-005. 5244-285

cheers

Joe Ferring
Senior Environmental Scientist

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Building C, 33 Saunders Street Pyrmont NSW 2009
Locked Bag 24, Broadway NSW 2007 AUSTRALIA

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M: +61 424970468
joseph.ferring@erm.com

www.erm.com

From: Fadi Soro [mailto:fadi.soro@alsglobal.com]
Sent: Friday, December 13, 2013 10:08 AM
To: Joseph Ferring
Cc: ERM Australia Project Symphony MacGen; Barbara Hanna
Subject: RE: pH, CEC, PSD, TOC

Hey Joe,

TOC, PSD, pH & EC as per original list

So just to clarify;

ES1324729-001 has insufficient sample volume therefore it will be cancelled from the list.
ES1325019-012 only 1 jar received and sent for Asbestos analysis therefore no volume remaining.
ES1324840-004 same as ES1325019-012

Sample ID LU_SB02_0.1 does not match sample code ES1325838-001 as listed on the table, can you give me the correct sample code please?

25 LT_MW04_0.5 will be added to the list.

Any questions please contact me on 8784 8568

Regards

Fadi

From: Joseph Ferring [mailto:Joseph.Ferring@erm.com]

Sent: Friday, 13 December 2013 9:58 AM

To: Fadi Soro

Cc: ERM Australia Project Symphony MacGen

Subject: FW: pH, CEC, PSD, TOC

Hi Fadi, we don't have suitable samples to replace two of the three samples where insufficient sample volume was available for pH, CEC, PSD, TOC.

Can you please schedule the following sample for pH, CEC, PSD and TOC:

25

Monitoring_Zone	SampleCode	Field_ID	Sampled_Date-Time	LocCode	ANALYSE FOR
LT	ES1324260009	LT_MW04_0.5	6/11/2013 0:00	LT_MW04	TOC,PSD, pH, CEC

Please let me know if you have any queries.

cheers

Joe Ferring
Senior Environmental Scientist

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From: Barbara Hanna [<mailto:Barbara.Hanna@alsglobal.com>]

Sent: Friday, December 13, 2013 8:48 AM

To: Joseph Ferring

Cc: John Ewing; Clea Henderson; ERM Australia Project Symphony MacGen

Subject: RE: pH, CEC, PSD, TOC

Thanks!

Kind Regards

Barbara Hanna

Client Services Manager
ALS | Environmental Division

277-289 Woodpark Road
Smithfield NSW 2164 Australia

How was your customer experience? Please send us your feedback

Please see our latest [EnviroMail 68 - Sampling and Analysis Implications of the new NEPM - July 2013](#)

[EnviroMail 69 - Testing Requirements of the new NEPM - July 2013](#)

[EnviroMail 70 - Variation of Naphthalene by SVOC and VOC Methods in Water - July 2013](#)

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Please consider the environment before printing this email.

From: Joseph Ferring [mailto:Joseph.Ferring@erm.com]

Sent: Thursday, 12 December 2013 8:24 PM

To: Barbara Hanna

Cc: John Ewing; Clea Henderson; ERM Australia Project Symphony MacGen

Subject: RE: pH, CEC, PSD, TOC

Thanks Barbara – that's fine. Please proceed with analysis.

cheers

Joe Ferring

Senior Environmental Scientist

ERM

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joseph.ferring@erm.com

www.erm.com

From: Barbara Hanna [<mailto:Barbara.Hanna@alsglobal.com>]
Sent: Thursday, December 12, 2013 5:36 PM
To: Joseph Ferring
Cc: John Ewing; Clea Henderson; ERM Australia Project Symphony MacGen
Subject: RE: pH, CEC, PSD, TOC

Hi Joe,

The best TAT we can offer for TOC, CEC and pH is 3 days. As for PSD the best they can offer is 7-10 working days!

In regards to the samples with the holding time issues we can't really comment on how results will be affected because it depends on the type of sample it is. But basically it will be a slight fluctuation in results either up or down.

Kind Regards

Barbara Hanna

Client Services Manager
ALS | Environmental Division

277-289 Woodpark Road
Smithfield NSW 2164 Australia

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From: Joseph Ferring [mailto:Joseph.Ferring@erm.com]
Sent: Thursday, 12 December 2013 5:09 PM
To: Barbara Hanna
Cc: John Ewing; Clea Henderson; ERM Australia Project Symphony MacGen
Subject: RE: pH, CEC, PSD, TOC

Hi Barbara, here are the additions we need for pH, CEC, PSD and TOC. We'll need to put them on the fastest TAT possible, but realise that PSD may not be able to be done in 24 hours. How about the rest?

The holding times for pH will be exceeded in the majority of samples and CEC and TOC will also be out for the yellow highlighted samples. How much difference to the results would this actually make?

Cheers,
Joe

Joe Ferring
Senior Environmental Scientist

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joseph.ferring@erm.com

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From: Barbara Hanna [<mailto:Barbara.Hanna@alsglobal.com>]
Sent: Thursday, December 12, 2013 12:45 PM
To: Joseph Ferring
Cc: John Ewing; Clea Henderson
Subject: RE: pH, CEC, PSD, TOC

Thanks!

Kind Regards

Barbara Hanna

Client Services Manager
ALS | Environmental Division

277-289 Woodpark Road
Smithfield NSW 2164 Australia

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From: Joseph Ferring [<mailto:Joseph.Ferring@erm.com>]
Sent: Thursday, 12 December 2013 12:21 PM
To: Barbara Hanna
Cc: John Ewing; Clea Henderson
Subject: RE: pH, CEC, PSD, TOC

Thanks Barbara – we'll put together list of what needs to be analysed and get back to you ASAP.

cheers

Joe Ferring
Senior Environmental Scientist

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Locked Bag 24, Broadway NSW 2007 AUSTRALIA

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joseph.ferring@erm.com

www.erm.com

From: Barbara Hanna [<mailto:Barbara.Hanna@alsglobal.com>]
Sent: Thursday, December 12, 2013 12:13 PM
To: Joseph Ferring
Cc: John Ewing; Clea Henderson
Subject: RE: pH, CEC, PSD, TOC

The holding times are as follows

pH: 7 days
CEC: 28 days
TOC: 28 days

PSD: 180 days

Kind Regards

Barbara Hanna

Client Services Manager
ALS | Environmental Division

277-289 Woodpark Road
Smithfield NSW 2164 Australia

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 Please consider the environment before printing this email.

From: Joseph Ferring [<mailto:Joseph.Ferring@erm.com>]

Sent: Thursday, 12 December 2013 12:08 PM

To: Barbara Hanna

Cc: John Ewing; Clea Henderson
Subject: pH, CEC, PSD, TOC
Importance: High

Hi Barbara, we have identified about 20 soil samples which we'll need to re-batch for pH, CEC, TOC and PSD. Could you please let us know what the holding times for these analyses are?

We would be looking to get these done on very fast TAT.

cheers

Joe Ferring
Senior Environmental Scientist

ERM

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SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1327324

<p>Client : ENVIRO RESOURCES MANAGEMENT</p> <p>Contact : MR JOSEPH FERRING</p> <p>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</p>	<p>Laboratory : Environmental Division Sydney</p> <p>Contact : Barbara Hanna</p> <p>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</p>
---	--

<p>E-mail : joseph.ferring@erm.com</p> <p>Telephone : +61 02 8584 8888</p> <p>Facsimile : +61 02 8584 8800</p>	<p>E-mail : Barbara.Hanna@alsglobal.com</p> <p>Telephone : +61 2 8784 8555</p> <p>Facsimile : +61 2 8784 8555</p>
---	--

<p>Project : Project Symphony</p> <p>Order number : ----</p> <p>C-O-C number : ----</p> <p>Site : ----</p> <p>Sampler : ----</p>	<p>Page : 1 of 3</p> <p>Quote number : ES2013ENVRES0369 (SY/794/13)</p> <p>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</p>
---	---

Dates

<p>Date Samples Received : 13-DEC-2013</p> <p>Client Requested Due Date : 18-DEC-2013</p>	<p>Issue Date : 14-DEC-2013 10:53</p> <p>Scheduled Reporting Date : 18-DEC-2013</p>
---	--

Delivery Details

<p>Mode of Delivery : Carrier</p> <p>No. of coolers/boxes : REBATCH</p> <p>Security Seal : Not intact.</p>	<p>Temperature : 19'C</p> <p>No. of samples received : 26</p> <p>No. of samples analysed : 26</p>
---	--

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **PSD analysis will be conducted by ALS Newcastle.**
- **Breaches in recommended extraction / analysis holding times may occur. Please refer to the 'Proactive Holding Time Report' below for further details. Please contact ALS if further information is required.**
- **ALL analysis will be reported on the scheduled due date 18/12/13, except for PSD analysis will be reported on 24/12/13.**
- **This is a rebatch of all Project Symphony work orders**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA150* Particle Size Analysis by Sieving (Default sieves from SOIL - ED007 CEC / Exchangeable Cations (ED007) -All SOIL - EP004 (Carbon) Total Organic Carbon (Calc.)		
ES1327324-001	26-NOV-2013 15:00	BH_SB07_0.2				✓
ES1327324-002	20-NOV-2013 15:00	BI_MW03_0.6		✓		✓
ES1327324-003	26-NOV-2013 15:00	BP_MW01_0.25	✓	✓		✓
ES1327324-004	25-NOV-2013 15:00	BV_SB07_0.25	✓			✓
ES1327324-005	26-NOV-2013 15:00	BE_MW09_0.9	✓	✓	✓	✓
ES1327324-006	14-NOV-2013 15:00	BK_SB06_0.6	✓	✓	✓	✓
ES1327324-007	25-NOV-2013 15:00	BL_SB01_0.25	✓	✓	✓	✓
ES1327324-008	26-NOV-2013 15:00	BX_MW02_0.5	✓	✓	✓	✓
ES1327324-009	04-DEC-2013 15:00	BM_SB01_0.5	✓	✓	✓	✓
ES1327324-010	22-NOV-2013 15:00	LA_MW02_1.0	✓	✓	✓	✓
ES1327324-011	22-NOV-2013 15:00	LE_SB01_1.0	✓	✓	✓	✓
ES1327324-012	21-NOV-2013 15:00	LF_SB02_0.1	✓	✓	✓	✓
ES1327324-013	15-NOV-2013 15:00	LI_MW08_0.5	✓	✓	✓	✓
ES1327324-014	30-NOV-2013 15:00	LL_SB12_0.5	✓	✓	✓	✓
ES1327324-015	11-NOV-2013 15:00	LM_MW02_0.5	✓	✓	✓	✓
ES1327324-016	08-NOV-2013 15:00	LN_MW03_0.5	✓	✓	✓	✓
ES1327324-017	12-NOV-2013 15:00	LO_SB01_0.5	✓	✓	✓	✓
ES1327324-018	02-DEC-2013 15:00	LP_MW06_1.0	✓	✓	✓	✓
ES1327324-019	19-NOV-2013 15:00	LQ_MW07_0.5	✓	✓	✓	✓
ES1327324-020	11-NOV-2013 15:00	LR_MW04_0.5	✓	✓	✓	✓
ES1327324-021	02-DEC-2013 15:00	LS_MW01_0.5	✓	✓	✓	✓
ES1327324-022	02-DEC-2013 15:00	LG_MW03_0.5	✓	✓	✓	✓
ES1327324-023	25-NOV-2013 15:00	LD_MW05_2.0	✓	✓	✓	✓
ES1327324-024	04-DEC-2013 15:00	LJ_SB07_0.8	✓	✓	✓	✓
ES1327324-025	06-DEC-2013 15:00	LT_MW04_0.5	✓	✓	✓	✓
ES1327324-026	02-DEC-2013 15:00	LU_SB02_0.1	✓	✓	✓	✓



Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method		Due for extraction	Due for analysis	Samples Received		Instructions Received	
Client Sample ID(s)	Container			Date	Evaluation	Date	Evaluation
EA002: pH (1:5)							
BE_MW09_0.9	Soil Glass Jar - Unpreserved	03-DEC-2013	----	13-DEC-2013	*	----	----
BK_SB06_0.6	Soil Glass Jar - Unpreserved	21-NOV-2013	----	13-DEC-2013	*	----	----
BL_SB01_0.25	Soil Glass Jar - Unpreserved	02-DEC-2013	----	13-DEC-2013	*	----	----
BM_SB01_0.5	Soil Glass Jar - Unpreserved	11-DEC-2013	----	13-DEC-2013	*	----	----
BP_MW01_0.25	Soil Glass Jar - Unpreserved	03-DEC-2013	----	13-DEC-2013	*	----	----
BV_SB07_0.25	Soil Glass Jar - Unpreserved	02-DEC-2013	----	13-DEC-2013	*	----	----
BX_MW02_0.5	Soil Glass Jar - Unpreserved	03-DEC-2013	----	13-DEC-2013	*	----	----
LA_MW02_1.0	Soil Glass Jar - Unpreserved	29-NOV-2013	----	13-DEC-2013	*	----	----
LD_MW05_2.0	Soil Glass Jar - Unpreserved	02-DEC-2013	----	13-DEC-2013	*	----	----
LE_SB01_1.0	Soil Glass Jar - Unpreserved	29-NOV-2013	----	13-DEC-2013	*	----	----
LF_SB02_0.1	Soil Glass Jar - Unpreserved	28-NOV-2013	----	13-DEC-2013	*	----	----
LG_MW03_0.5	Soil Glass Jar - Unpreserved	09-DEC-2013	----	13-DEC-2013	*	----	----
LI_MW08_0.5	Soil Glass Jar - Unpreserved	22-NOV-2013	----	13-DEC-2013	*	----	----
LJ_SB07_0.8	Soil Glass Jar - Unpreserved	11-DEC-2013	----	13-DEC-2013	*	----	----
LL_SB12_0.5	Soil Glass Jar - Unpreserved	07-DEC-2013	----	13-DEC-2013	*	----	----
LM_MW02_0.5	Soil Glass Jar - Unpreserved	18-NOV-2013	----	13-DEC-2013	*	----	----
LN_MW03_0.5	Soil Glass Jar - Unpreserved	15-NOV-2013	----	13-DEC-2013	*	----	----
LO_SB01_0.5	Soil Glass Jar - Unpreserved	19-NOV-2013	----	13-DEC-2013	*	----	----
LP_MW06_1.0	Soil Glass Jar - Unpreserved	09-DEC-2013	----	13-DEC-2013	*	----	----
LQ_MW07_0.5	Soil Glass Jar - Unpreserved	26-NOV-2013	----	13-DEC-2013	*	----	----
LR_MW04_0.5	Soil Glass Jar - Unpreserved	18-NOV-2013	----	13-DEC-2013	*	----	----
LS_MW01_0.5	Soil Glass Jar - Unpreserved	09-DEC-2013	----	13-DEC-2013	*	----	----
LU_SB02_0.1	Soil Glass Jar - Unpreserved	09-DEC-2013	----	13-DEC-2013	*	----	----
ED007: Exchangeable Cations							
BK_SB06_0.6	Soil Glass Jar - Unpreserved	12-DEC-2013	----	13-DEC-2013	*	----	----
LM_MW02_0.5	Soil Glass Jar - Unpreserved	09-DEC-2013	----	13-DEC-2013	*	----	----
LN_MW03_0.5	Soil Glass Jar - Unpreserved	06-DEC-2013	----	13-DEC-2013	*	----	----
LO_SB01_0.5	Soil Glass Jar - Unpreserved	10-DEC-2013	----	13-DEC-2013	*	----	----
LR_MW04_0.5	Soil Glass Jar - Unpreserved	09-DEC-2013	----	13-DEC-2013	*	----	----
EP004: Organic Matter							
BK_SB06_0.6	Soil Glass Jar - Unpreserved	12-DEC-2013	----	13-DEC-2013	*	----	----
LM_MW02_0.5	Soil Glass Jar - Unpreserved	09-DEC-2013	----	13-DEC-2013	*	----	----
LN_MW03_0.5	Soil Glass Jar - Unpreserved	06-DEC-2013	----	13-DEC-2013	*	----	----
LO_SB01_0.5	Soil Glass Jar - Unpreserved	10-DEC-2013	----	13-DEC-2013	*	----	----
LR_MW04_0.5	Soil Glass Jar - Unpreserved	09-DEC-2013	----	13-DEC-2013	*	----	----

Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA) Email joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email joseph.ferring@erm.com
- Attachment - Report (SUBCO) Email joseph.ferring@erm.com
- Chain of Custody (CoC) (COC) Email joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG) Email joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM) Email joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT) Email joseph.ferring@erm.com
- EDI Format - XTab (XTAB) Email joseph.ferring@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV) Email au.accounts@erm.com

CERTIFICATE OF ANALYSIS

Work Order : ES1327324 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : Project Symphony Order number : ---- C-O-C number : ---- Sampler : ---- Site : ---- Quote number : SY/794/13	Page : 1 of 8 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 13-DEC-2013 Issue Date : 23-DEC-2013 No. of samples received : 26 No. of samples analysed : 26
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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BH_SB07_0.2	BI_MW03_0.6	BP_MW01_0.25	BV_SB07_0.25	BE_MW09_0.9
				26-NOV-2013 15:00	20-NOV-2013 15:00	26-NOV-2013 15:00	25-NOV-2013 15:00	26-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327324-001	ES1327324-002	ES1327324-003	ES1327324-004	ES1327324-005
EA150: Particle Sizing								
+75µm	----	1	%	----	14	78	----	3
+150µm	----	1	%	----	11	75	----	<1
+300µm	----	1	%	----	11	72	----	<1
+425µm	----	1	%	----	11	69	----	<1
+600µm	----	1	%	----	11	67	----	<1
+1180µm	----	1	%	----	10	62	----	<1
+2.36mm	----	1	%	----	10	56	----	<1
+4.75mm	----	1	%	----	7	44	----	<1
+9.5mm	----	1	%	----	5	31	----	<1
+19.0mm	----	1	%	----	<1	<1	----	<1
+37.5mm	----	1	%	----	<1	<1	----	<1
+75.0mm	----	1	%	----	<1	<1	----	<1
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	----	----	6.7	7.4	4.1
EA150: Soil Classification based on Particle Size								
Fines (<75 µm)	----	1	%	----	86	22	----	97
Sand (>75 µm)	----	1	%	----	4	21	----	3
Gravel (>2mm)	----	1	%	----	10	56	----	<1
Cobbles (>6cm)	----	1	%	----	<1	<1	----	<1
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	----	----	----	----	40.2
Exchangeable Magnesium	----	0.1	meq/100g	----	----	----	----	1.1
Exchangeable Potassium	----	0.1	meq/100g	----	----	----	----	0.2
Exchangeable Sodium	----	0.1	meq/100g	----	----	----	----	0.2
Cation Exchange Capacity	----	0.1	meq/100g	----	----	----	----	41.7
Exchangeable Aluminium	----	0.1	meq/100g	----	----	----	----	<0.1
EP004: Organic Matter								
Organic Matter	----	0.5	%	<0.5	<0.5	<0.5	<0.5	<0.5
Total Organic Carbon	----	0.5	%	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BK_SB06_0.6	BL_SB01_0.25	BX_MW02_0.5	BM_SB01_0.5	LA_MW02_1.0
				14-NOV-2013 15:00	25-NOV-2013 15:00	26-NOV-2013 15:00	04-DEC-2013 15:00	22-NOV-2013 15:00
				ES1327324-006	ES1327324-007	ES1327324-008	ES1327324-009	ES1327324-010
Compound	CAS Number	LOR	Unit					
EA150: Particle Sizing								
+75µm	----	1	%	10	69	9	37	30
+150µm	----	1	%	2	66	2	31	24
+300µm	----	1	%	2	60	1	27	16
+425µm	----	1	%	1	55	<1	24	13
+600µm	----	1	%	1	50	<1	21	11
+1180µm	----	1	%	<1	40	<1	16	9
+2.36mm	----	1	%	<1	28	<1	9	7
+4.75mm	----	1	%	<1	11	<1	2	3
+9.5mm	----	1	%	<1	<1	<1	<1	2
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	5.4	9.8	5.2	7.8	5.8
EA150: Soil Classification based on Particle Size								
Fines (<75 µm)	----	1	%	90	31	91	63	70
Sand (>75 µm)	----	1	%	10	41	9	27	24
Gravel (>2mm)	----	1	%	<1	28	<1	9	7
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	2.9	39.6	1.3	18.9	1.7
Exchangeable Magnesium	----	0.1	meq/100g	5.2	0.5	4.5	3.2	7.3
Exchangeable Potassium	----	0.1	meq/100g	0.2	0.3	0.2	0.3	0.2
Exchangeable Sodium	----	0.1	meq/100g	0.8	0.1	0.5	0.2	1.0
Cation Exchange Capacity	----	0.1	meq/100g	9.0	40.5	6.5	22.6	10.2
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1
EP004: Organic Matter								
Organic Matter	----	0.5	%	<0.5	<0.5	0.7	1.7	0.5
Total Organic Carbon	----	0.5	%	<0.5	<0.5	<0.5	1.0	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LE_SB01_1.0	LF_SB02_0.1	LI_MW08_0.5	LL_SB12_0.5	LM_MW02_0.5
				22-NOV-2013 15:00	21-NOV-2013 15:00	15-NOV-2013 15:00	30-NOV-2013 15:00	11-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327324-011	ES1327324-012	ES1327324-013	ES1327324-014	ES1327324-015
EA150: Particle Sizing								
+75µm	----	1	%	29	69	63	37	49
+150µm	----	1	%	22	63	59	33	44
+300µm	----	1	%	14	51	56	30	39
+425µm	----	1	%	10	42	54	28	37
+600µm	----	1	%	8	33	52	26	36
+1180µm	----	1	%	6	22	47	21	34
+2.36mm	----	1	%	3	15	39	17	32
+4.75mm	----	1	%	<1	9	27	12	24
+9.5mm	----	1	%	<1	2	7	4	8
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	6.2	8.2	5.1	6.8	4.6
EA150: Soil Classification based on Particle Size								
Fines (<75 µm)	----	1	%	71	31	37	63	51
Sand (>75 µm)	----	1	%	25	54	23	21	18
Gravel (>2mm)	----	1	%	3	15	39	17	32
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	1.7	25.0	9.6	4.3	5.5
Exchangeable Magnesium	----	0.1	meq/100g	5.0	1.9	3.8	7.0	8.1
Exchangeable Potassium	----	0.1	meq/100g	<0.1	0.3	0.2	0.2	0.3
Exchangeable Sodium	----	0.1	meq/100g	1.2	0.2	0.4	1.8	0.4
Cation Exchange Capacity	----	0.1	meq/100g	8.0	27.4	14.0	13.3	14.2
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1
EP004: Organic Matter								
Organic Matter	----	0.5	%	0.7	<0.5	3.4	0.5	0.8
Total Organic Carbon	----	0.5	%	<0.5	<0.5	2.0	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LN_MW03_0.5	LO_SB01_0.5	LP_MW06_1.0	LQ_MW07_0.5	LR_MW04_0.5
				08-NOV-2013 15:00	12-NOV-2013 15:00	02-DEC-2013 15:00	19-NOV-2013 15:00	11-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327324-016	ES1327324-017	ES1327324-018	ES1327324-019	ES1327324-020
EA150: Particle Sizing								
+75µm	----	1	%	4	85	11	58	32
+150µm	----	1	%	2	82	6	49	19
+300µm	----	1	%	1	78	6	41	15
+425µm	----	1	%	1	74	6	37	13
+600µm	----	1	%	<1	69	5	34	12
+1180µm	----	1	%	<1	60	4	28	10
+2.36mm	----	1	%	<1	52	3	24	7
+4.75mm	----	1	%	<1	40	1	16	4
+9.5mm	----	1	%	<1	14	<1	6	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	8.8	8.7	8.6	7.7	7.3
EA150: Soil Classification based on Particle Size								
Fines (<75 µm)	----	1	%	96	15	89	42	68
Sand (>75 µm)	----	1	%	4	33	9	34	25
Gravel (>2mm)	----	1	%	<1	52	3	24	7
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	7.2	8.6	18.9	21.1	2.1
Exchangeable Magnesium	----	0.1	meq/100g	7.0	4.0	10.8	1.0	6.6
Exchangeable Potassium	----	0.1	meq/100g	0.2	0.1	0.1	0.2	0.2
Exchangeable Sodium	----	0.1	meq/100g	1.1	0.1	2.1	<0.1	0.9
Cation Exchange Capacity	----	0.1	meq/100g	15.5	12.8	31.9	22.3	9.8
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1
EP004: Organic Matter								
Organic Matter	----	0.5	%	<0.5	<0.5	<0.5	0.5	<0.5
Total Organic Carbon	----	0.5	%	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LS_MW01_0.5	LG_MW03_0.5	LD_MW05_2.0	LJ_SB07_0.8	LT_MW04_0.5
				02-DEC-2013 15:00	02-DEC-2013 15:00	25-NOV-2013 15:00	04-DEC-2013 15:00	06-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327324-021	ES1327324-022	ES1327324-023	ES1327324-024	ES1327324-025
EA150: Particle Sizing								
+75µm	----	1	%	3	76	12	13	28
+150µm	----	1	%	2	72	11	8	22
+300µm	----	1	%	1	59	11	5	18
+425µm	----	1	%	<1	44	11	4	16
+600µm	----	1	%	<1	36	11	4	15
+1180µm	----	1	%	<1	26	10	3	14
+2.36mm	----	1	%	<1	14	9	3	12
+4.75mm	----	1	%	<1	9	6	2	10
+9.5mm	----	1	%	<1	8	6	<1	<1
+19.0mm	----	1	%	<1	8	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	7.2	7.6	7.8	8.8	4.8
EA150: Soil Classification based on Particle Size								
Fines (<75 µm)	----	1	%	97	24	88	87	72
Sand (>75 µm)	----	1	%	3	62	3	10	16
Gravel (>2mm)	----	1	%	<1	14	9	3	12
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	5.6	13.0	2.1	5.0	2.7
Exchangeable Magnesium	----	0.1	meq/100g	17.4	1.0	6.6	8.2	5.7
Exchangeable Potassium	----	0.1	meq/100g	0.3	0.3	0.1	0.3	0.2
Exchangeable Sodium	----	0.1	meq/100g	3.0	<0.1	3.0	1.2	1.0
Cation Exchange Capacity	----	0.1	meq/100g	26.3	14.4	11.8	14.7	9.6
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1
EP004: Organic Matter								
Organic Matter	----	0.5	%	1.1	3.4	<0.5	0.5	<0.5
Total Organic Carbon	----	0.5	%	0.6	1.9	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

LU_SB02_0.1

Client sampling date / time

02-DEC-2013 15:00

Compound	CAS Number	LOR	Unit	ES1327324-026	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

EA150: Particle Sizing

+75µm	---	1	%	88	---	---	---	---
+150µm	---	1	%	85	---	---	---	---
+300µm	---	1	%	79	---	---	---	---
+425µm	---	1	%	72	---	---	---	---
+600µm	---	1	%	61	---	---	---	---
+1180µm	---	1	%	42	---	---	---	---
+2.36mm	---	1	%	26	---	---	---	---
+4.75mm	---	1	%	16	---	---	---	---
+9.5mm	---	1	%	12	---	---	---	---
+19.0mm	---	1	%	12	---	---	---	---
+37.5mm	---	1	%	<1	---	---	---	---
+75.0mm	---	1	%	<1	---	---	---	---

EA002 : pH (Soils)

pH Value	---	0.1	pH Unit	8.6	---	---	---	---
----------	-----	-----	---------	-----	-----	-----	-----	-----

EA150: Soil Classification based on Particle Size

Fines (<75 µm)	---	1	%	12	---	---	---	---
Sand (>75 µm)	---	1	%	62	---	---	---	---
Gravel (>2mm)	---	1	%	27	---	---	---	---
Cobbles (>6cm)	---	1	%	<1	---	---	---	---

ED007: Exchangeable Cations

Exchangeable Calcium	---	0.1	meq/100g	13.0	---	---	---	---
Exchangeable Magnesium	---	0.1	meq/100g	3.0	---	---	---	---
Exchangeable Potassium	---	0.1	meq/100g	0.4	---	---	---	---
Exchangeable Sodium	---	0.1	meq/100g	0.2	---	---	---	---
Cation Exchange Capacity	---	0.1	meq/100g	16.5	---	---	---	---
Exchangeable Aluminium	---	0.1	meq/100g	<0.1	---	---	---	---

EP004: Organic Matter

Organic Matter	---	0.5	%	<0.5	---	---	---	---
Total Organic Carbon	---	0.5	%	<0.5	---	---	---	---

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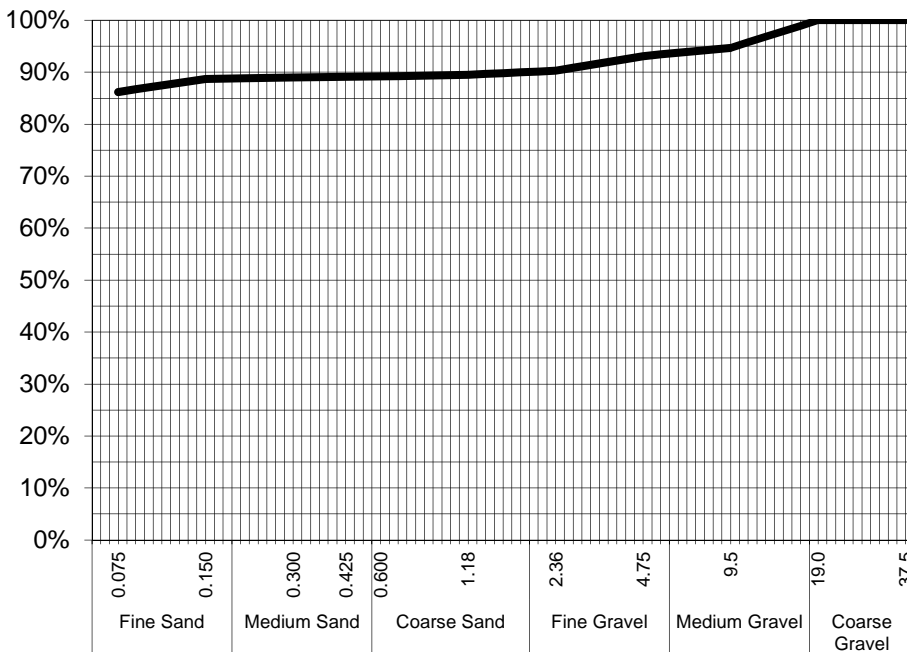
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 fax 02 4968 0349
 samples.newcastle@alsenviro.com

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Newcastle, NSW



CLIENT: Joseph Ferring **DATE REPORTED:** 23-Dec-2013
COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-002 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** BI_MW03_0.6

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	95%
4.75	93%
2.36	90%
1.18	90%
0.600	89%
0.425	89%
0.300	89%
0.150	89%
0.075	86%

Samples analysed as received.

Sample Comments:

Analysed: 19-Dec-13

Loss on Pretreatment: NA

Limit of Reporting: 1%

Sample Description: Fines and gravel

Test Method: AS1289.3.6.1

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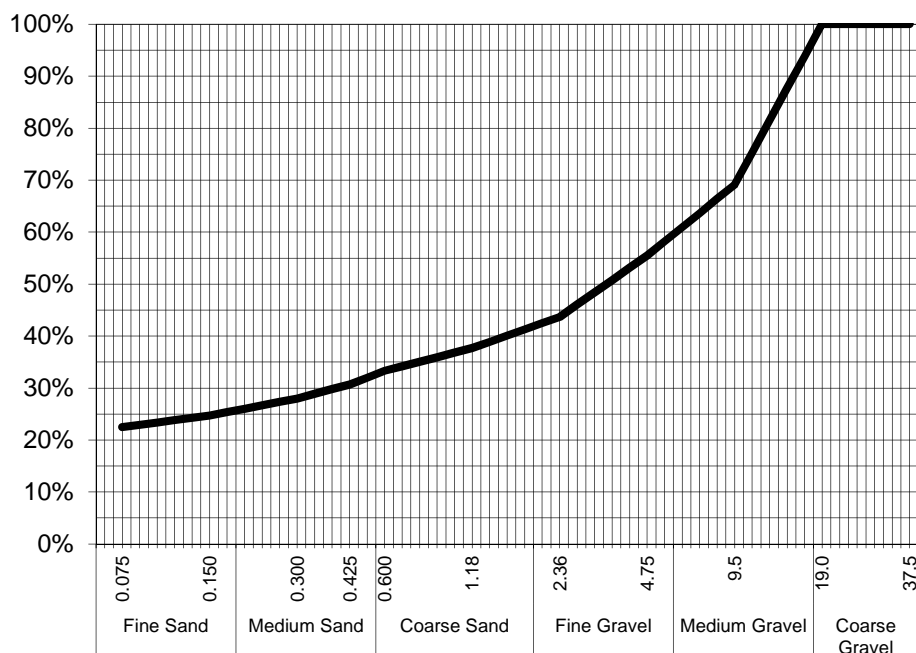
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CLIENT: Joseph Ferring **DATE REPORTED:** 23-Dec-2013
COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-003 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** BP_MW01_0.25

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	69%
4.75	56%
2.36	44%
1.18	38%
0.600	33%
0.425	31%
0.300	28%
0.150	25%
0.075	23%

Samples analysed as received.

Sample Comments:

Analysed: 19-Dec-13

Loss on Pretreatment: NA

Limit of Reporting: 1%

Sample Description: Gravel, fines and sand

Test Method: AS1289.3.6.1

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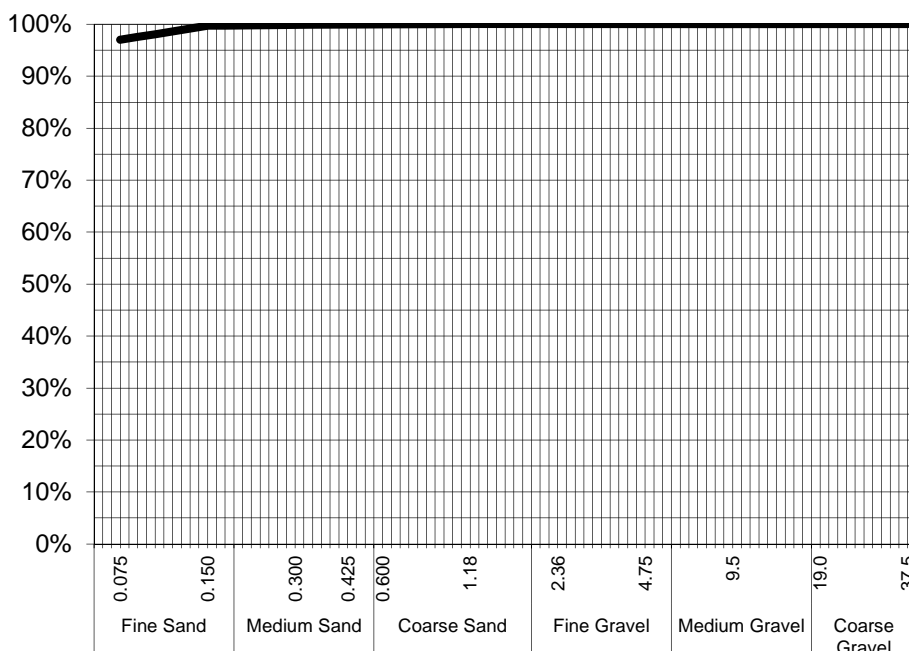
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COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-005 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** BE_MW09_0.9

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	100%
2.36	100%
1.18	100%
0.600	100%
0.425	100%
0.300	100%
0.150	100%
0.075	97%

Samples analysed as received.

Sample Comments:

Analysed: 19-Dec-13

Loss on Pretreatment: NA

Limit of Reporting: 1%

Sample Description: Fines

Test Method: AS1289.3.6.1

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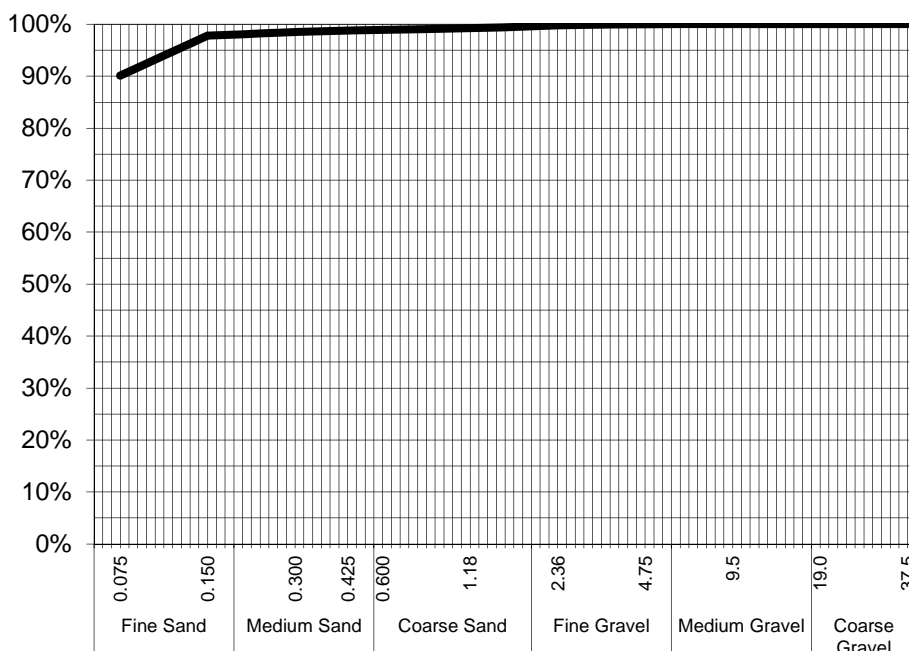
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COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-006 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** BK_SB06_0.6

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	100%
2.36	100%
1.18	99%
0.600	99%
0.425	99%
0.300	99%
0.150	98%
0.075	90%

Samples analysed as received.

Sample Comments:

Loss on Pretreatment NA

Sample Description: Fines and sand

Test Method: AS1289.3.6.1

Analysed: 19-Dec-13

Limit of Reporting: 1%

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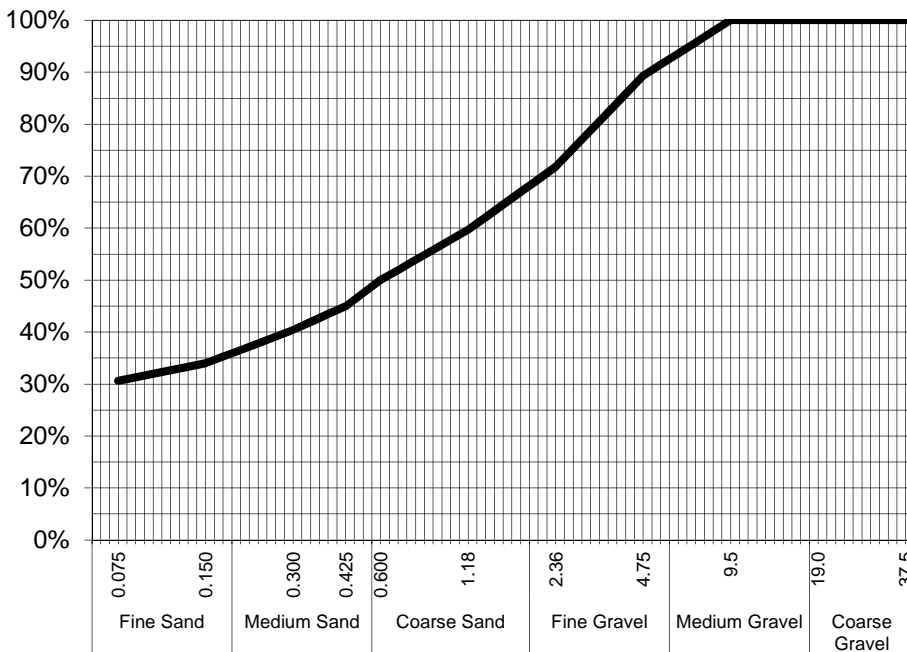
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COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-007 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** BL_SB01_0.25

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	89%
2.36	72%
1.18	60%
0.600	50%
0.425	45%
0.300	40%
0.150	34%
0.075	31%

Samples analysed as received.

Sample Comments:

Analysed: 19-Dec-13

Loss on Pretreatment: NA

Limit of Reporting: 1%

Sample Description: Sand, fines and gravel

Test Method: AS1289.3.6.1

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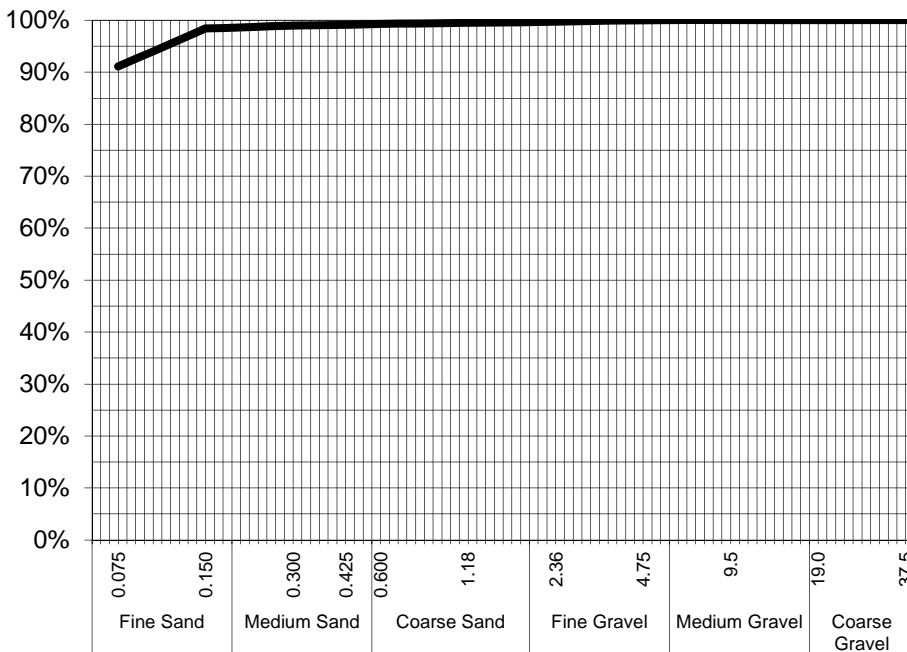
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<u>COMPANY:</u>	Enviro Resources Management	<u>DATE RECEIVED:</u>	13-Dec-2013
<u>ADDRESS:</u>	Ground Floor 33 Saunders Street, Pyrmont NSW 2009	<u>REPORT NO:</u>	ES1327324-008 / PSD
<u>PROJECT:</u>	Project Symphony	<u>SAMPLE ID:</u>	BX_MW02_0.5

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	100%
2.36	100%
1.18	100%
0.600	99%
0.425	99%
0.300	99%
0.150	98%
0.075	91%

Samples analysed as received.

Sample Comments:

Analysed: 19-Dec-13

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description: Fines

Test Method: AS1289.3.6.1

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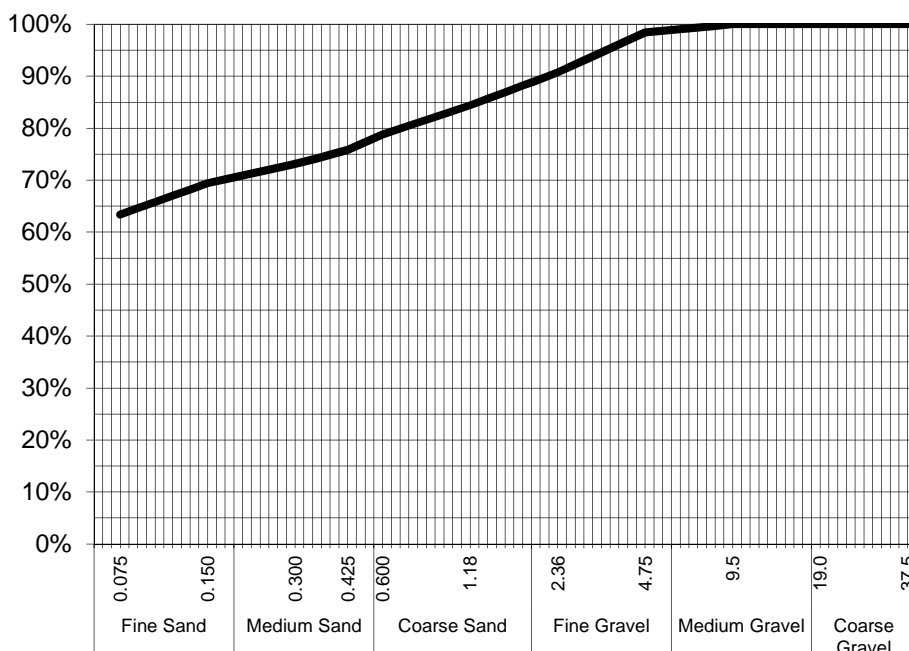
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COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-009 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** BM_SB01_0.5

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	98%
2.36	91%
1.18	84%
0.600	79%
0.425	76%
0.300	73%
0.150	69%
0.075	63%

Samples analysed as received.

Sample Comments:

Analysed: 19-Dec-13

Loss on Pretreatment: NA

Limit of Reporting: 1%

Sample Description: Fines and sand

Test Method: AS1289.3.6.1

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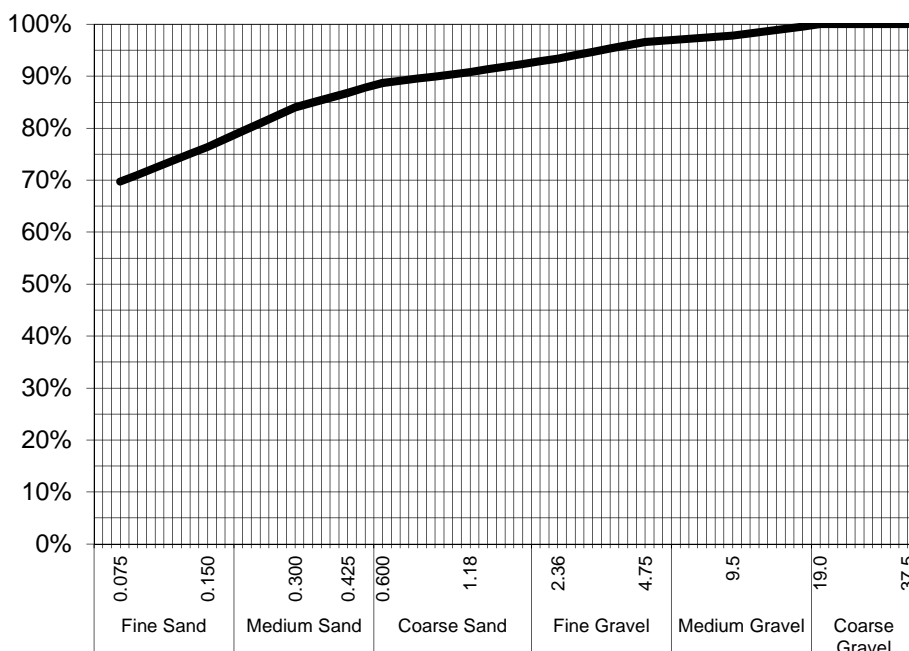
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COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-010 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** LA_MW02_1.0

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	98%
4.75	97%
2.36	93%
1.18	91%
0.600	89%
0.425	87%
0.300	84%
0.150	76%
0.075	70%

Samples analysed as received.

Sample Comments:

Analysed: 19-Dec-13

Loss on Pretreatment: NA

Limit of Reporting: 1%

Sample Description: Fines and sand

Test Method: AS1289.3.6.1

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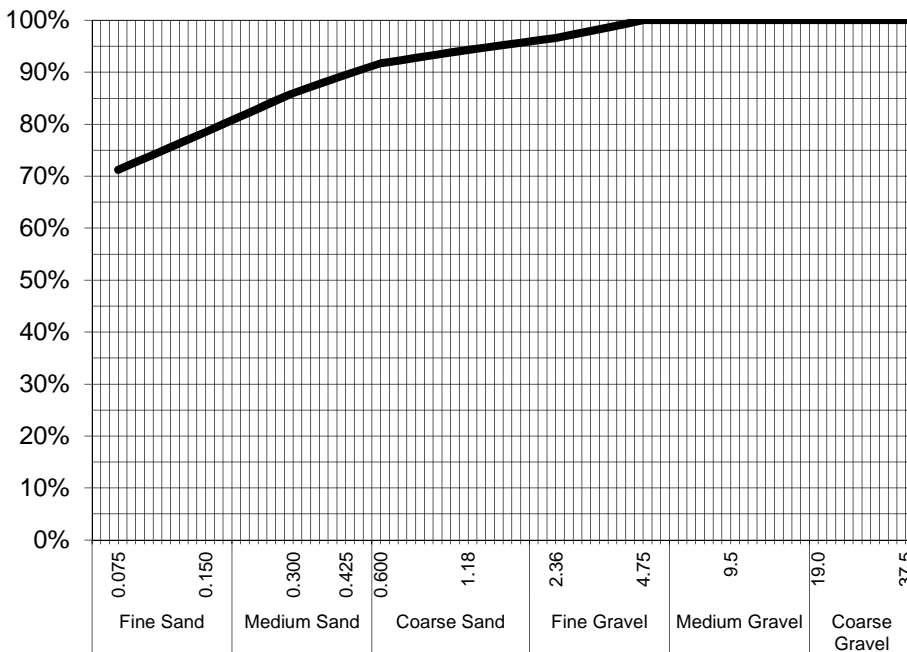
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COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-011 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** LE_SB01_1.0

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	100%
2.36	97%
1.18	94%
0.600	92%
0.425	90%
0.300	86%
0.150	79%
0.075	71%

Samples analysed as received.

Sample Comments:

Analysed: 19-Dec-13

Loss on Pretreatment: NA

Limit of Reporting: 1%

Sample Description: Fines and sand

Test Method: AS1289.3.6.1

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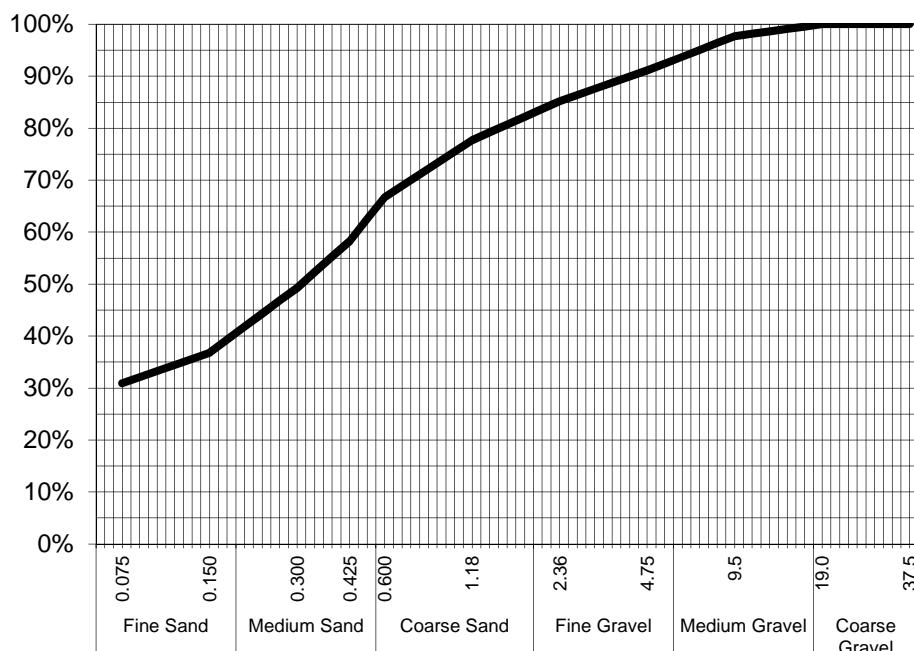
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COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-012 / PSD
33 Saunders Street, Pyrmont
NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** LF_SB02_0.1

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	98%
4.75	91%
2.36	85%
1.18	78%
0.600	67%
0.425	58%
0.300	49%
0.150	37%
0.075	31%

Samples analysed as received.

Sample Comments:

Analysed: 19-Dec-13

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description: Sand, fines and gravel

Test Method: AS1289.3.6.1

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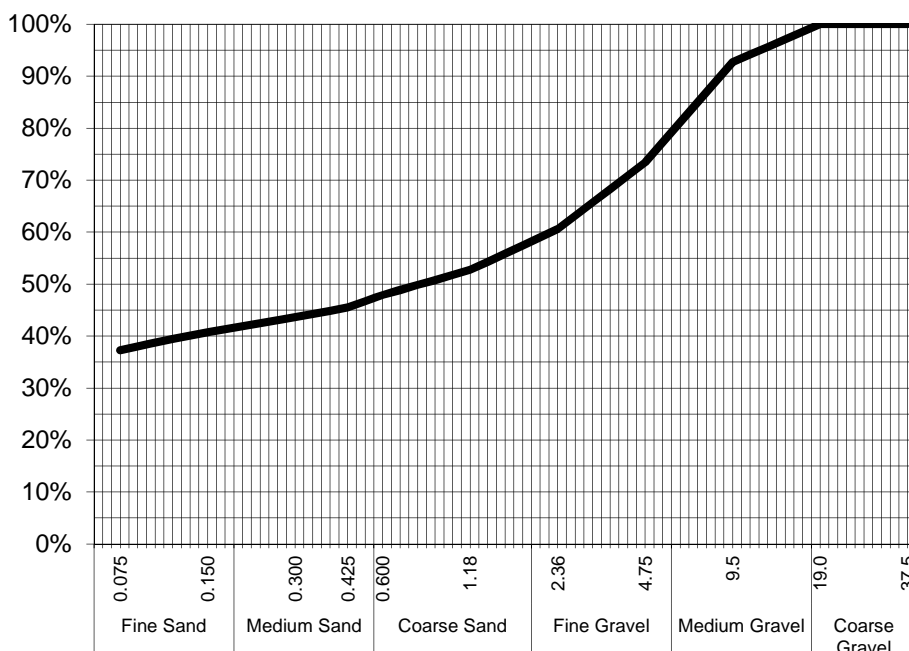
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COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-013 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** LI_MW08_0.5

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	93%
4.75	73%
2.36	61%
1.18	53%
0.600	48%
0.425	46%
0.300	44%
0.150	41%
0.075	37%

Samples analysed as received.

Sample Comments:

Analysed: 19-Dec-13

Loss on Pretreatment: NA

Limit of Reporting: 1%

Sample Description: Gravel, fines and sand

Test Method: AS1289.3.6.1

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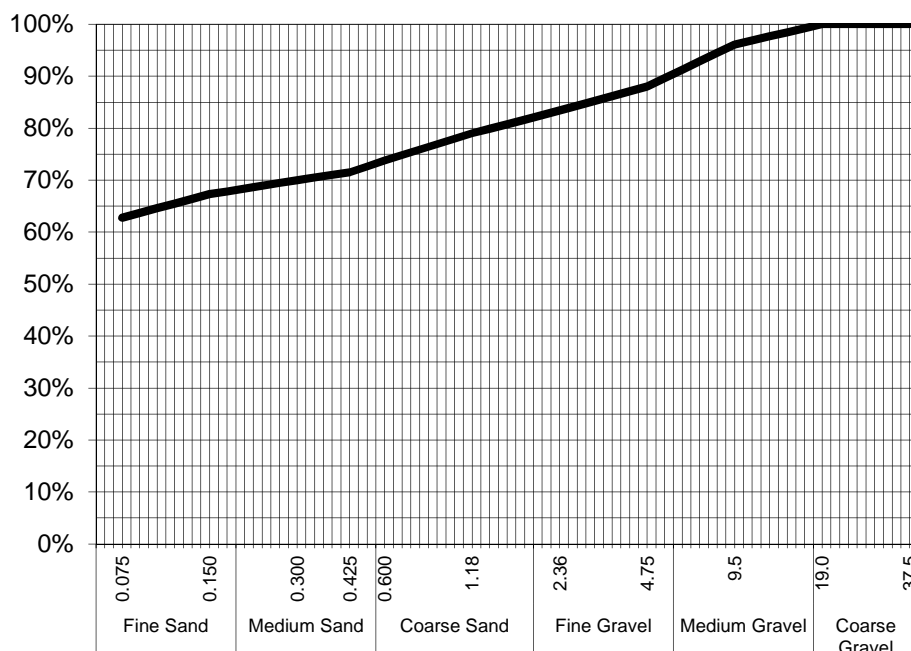
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COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-014 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** LL_SB12_0.5

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	96%
4.75	88%
2.36	83%
1.18	79%
0.600	74%
0.425	72%
0.300	70%
0.150	67%
0.075	63%

Samples analysed as received.

Sample Comments:

Analysed: 19-Dec-13

Loss on Pretreatment: NA

Limit of Reporting: 1%

Sample Description: Fines, sand and gravel

Test Method: AS1289.3.6.1

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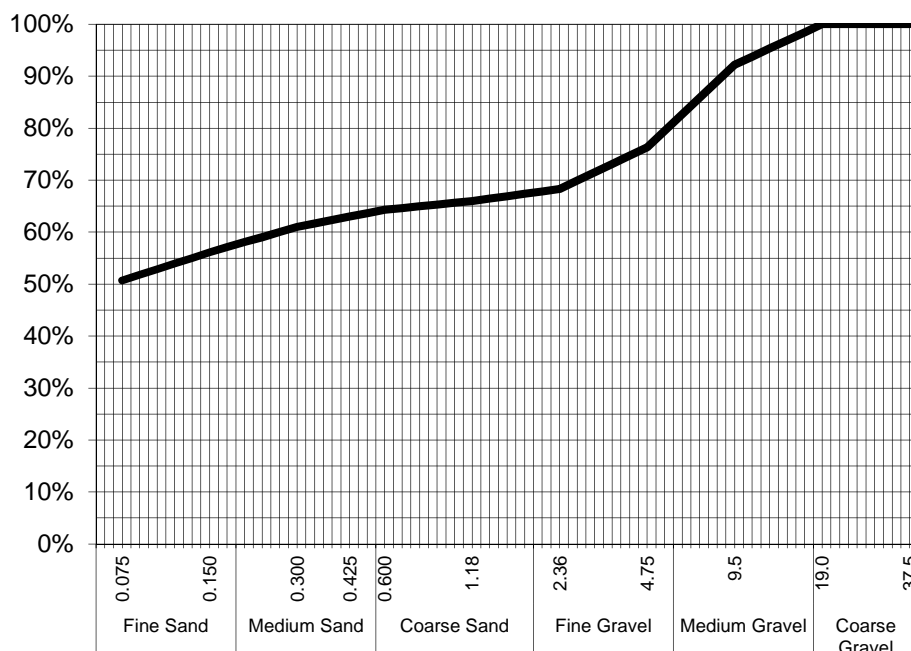
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COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-015 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** LM_MW02_0.5

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	92%
4.75	76%
2.36	68%
1.18	66%
0.600	64%
0.425	63%
0.300	61%
0.150	56%
0.075	51%

Samples analysed as received.

Sample Comments:

Analysed: 19-Dec-13

Loss on Pretreatment: NA

Limit of Reporting: 1%

Sample Description: Fines, gravel and sand

Test Method: AS1289.3.6.1

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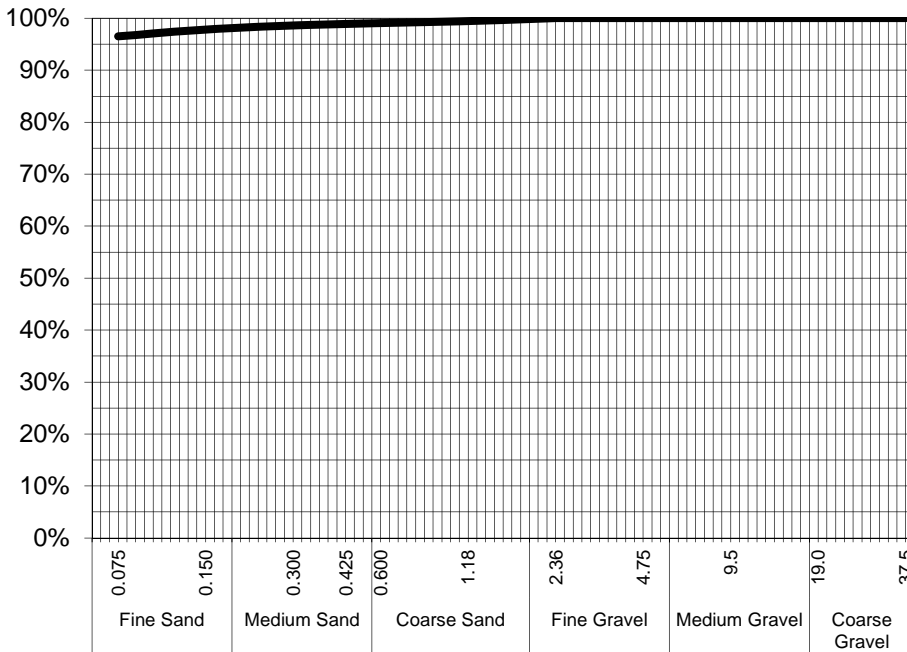
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COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-016 / PSD
33 Saunders Street, Pyrmont
NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** LN_MW03_0.5

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	100%
2.36	100%
1.18	99%
0.600	99%
0.425	99%
0.300	99%
0.150	98%
0.075	97%

Samples analysed as received.

Sample Comments:

Loss on Pretreatment NA

Sample Description: Fines

Test Method: AS1289.3.6.1

Analysed: 19-Dec-13

Limit of Reporting: 1%

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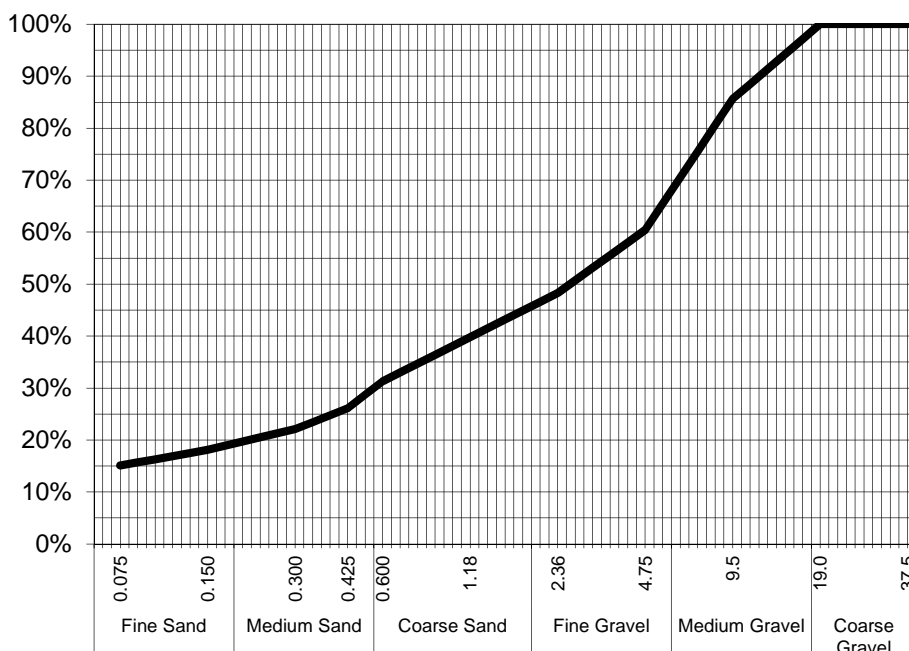
ALS Laboratory Group Pty Ltd
 5/585 Maitland Road
 Mayfield West, NSW 2304
 pH 02 4968 9433
 fax 02 4968 0349
 samples.newcastle@alsenviro.com

ALS Environmental
Newcastle, NSW



CLIENT: Joseph Ferring **DATE REPORTED:** 23-Dec-2013
COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-017 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** LO_SB01_0.5

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	86%
4.75	60%
2.36	48%
1.18	40%
0.600	31%
0.425	26%
0.300	22%
0.150	18%
0.075	15%

Samples analysed as received.

Sample Comments:

Analysed: 19-Dec-13

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description: Gravel, sand and fines

Test Method: AS1289.3.6.1

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 Laboratory Supervisor, Newcastle
Authorised Signatory

NATA Accreditation: 825 Site: Newcastle
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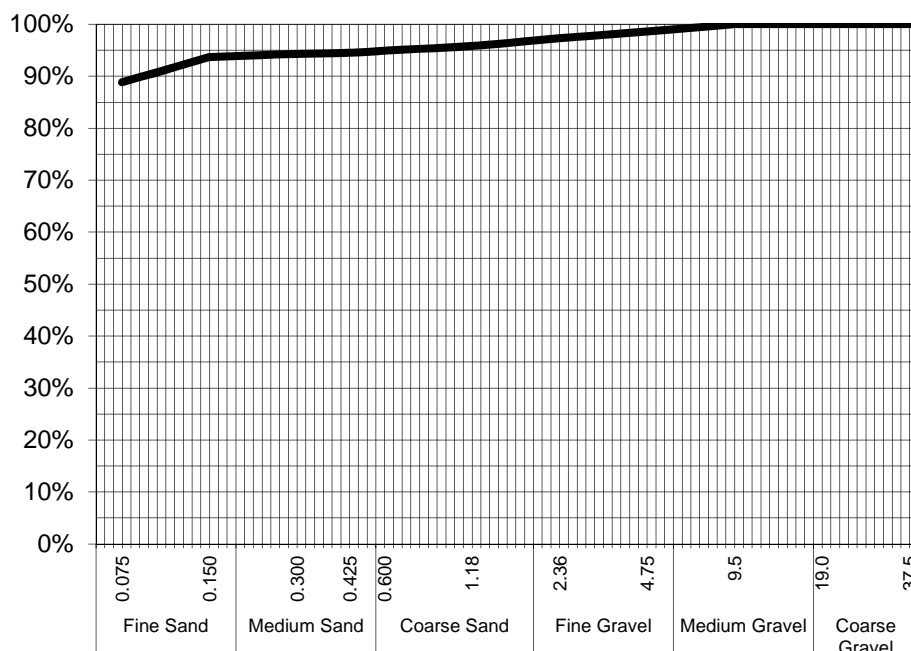
ALS Laboratory Group Pty Ltd
 5/585 Maitland Road
 Mayfield West, NSW 2304
 pH 02 4968 9433
 fax 02 4968 0349
 samples.newcastle@alsenviro.com

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Newcastle, NSW



CLIENT: Joseph Ferring **DATE REPORTED:** 23-Dec-2013
COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-018 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** LP_MW06_1.0

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	99%
2.36	97%
1.18	96%
0.600	95%
0.425	95%
0.300	94%
0.150	94%
0.075	89%

Samples analysed as received.

Sample Comments:

Analysed: 19-Dec-13

Loss on Pretreatment: NA

Limit of Reporting: 1%

Sample Description: Fines

Test Method: AS1289.3.6.1

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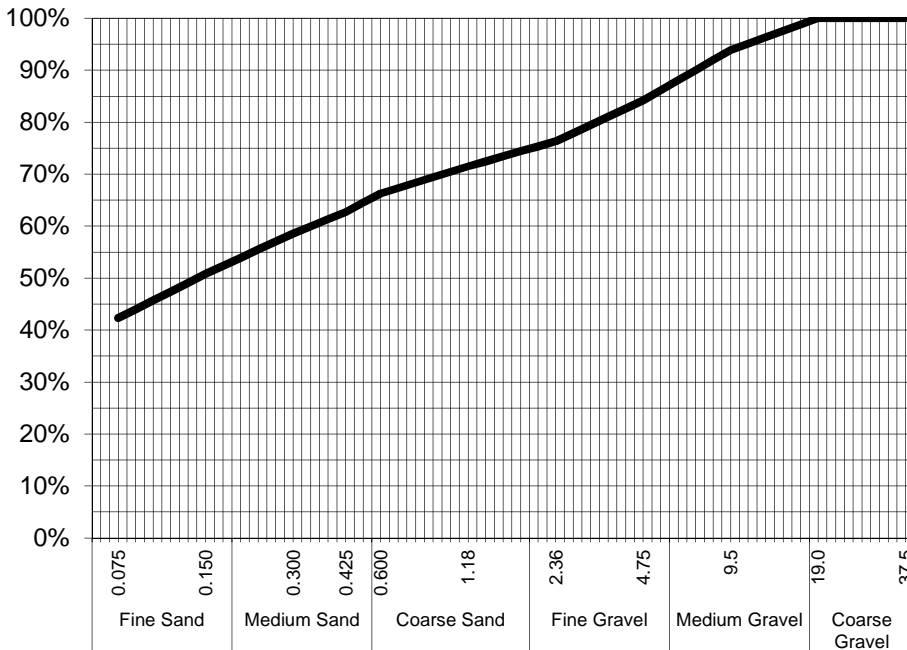
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 fax 02 4968 0349
 samples.newcastle@alsenviro.com

ALS Environmental
Newcastle, NSW



CLIENT: Joseph Ferring **DATE REPORTED:** 23-Dec-2013
COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-019 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** LQ_MW07_0.5

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	94%
4.75	84%
2.36	76%
1.18	72%
0.600	66%
0.425	63%
0.300	59%
0.150	51%
0.075	42%

Samples analysed as received.

Sample Comments:

Analysed: 19-Dec-13

Loss on Pretreatment: NA

Limit of Reporting: 1%

Sample Description: Fines, sand and gravel

Test Method: AS1289.3.6.1

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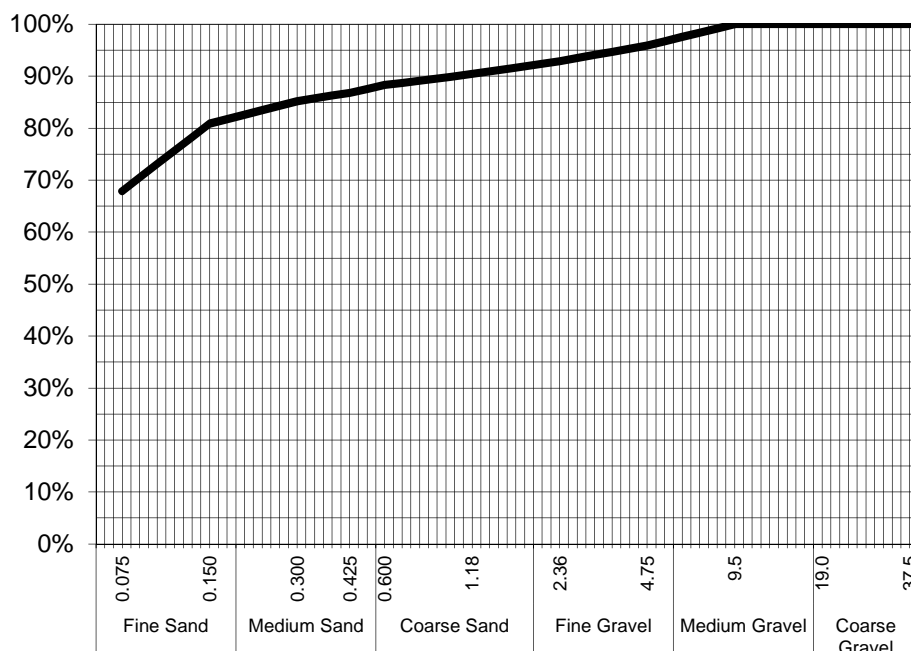
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 pH 02 4968 9433
 fax 02 4968 0349
 samples.newcastle@alsenviro.com

ALS Environmental
Newcastle, NSW



CLIENT: Joseph Ferring **DATE REPORTED:** 23-Dec-2013
COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-020 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** LR_MW04_0.5

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	96%
2.36	93%
1.18	90%
0.600	88%
0.425	87%
0.300	85%
0.150	81%
0.075	68%

Samples analysed as received.

Sample Comments:

Analysed: 19-Dec-13

Loss on Pretreatment: NA

Limit of Reporting: 1%

Sample Description: Fines and sand

Test Method: AS1289.3.6.1

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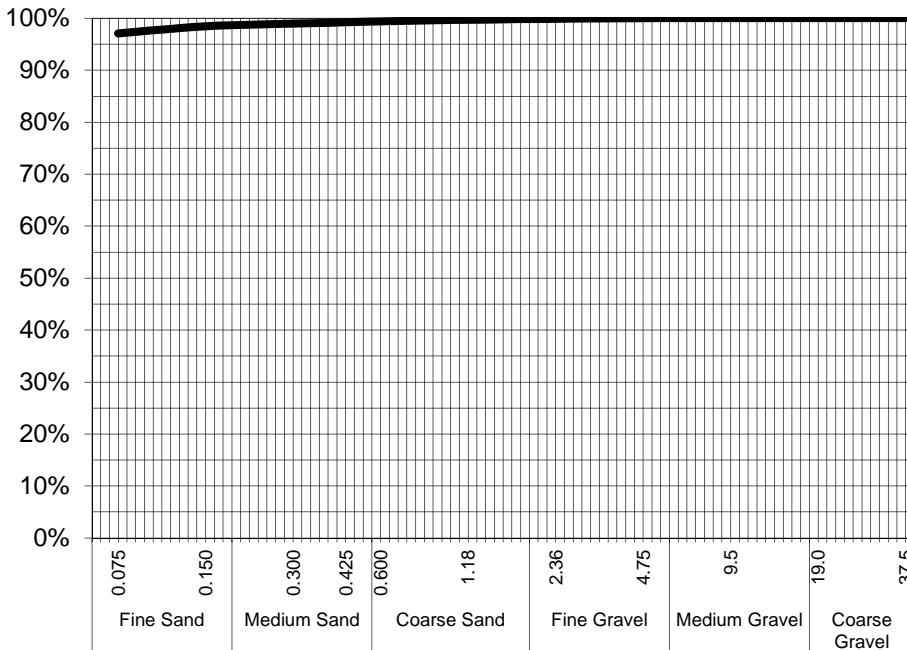
ALS Laboratory Group Pty Ltd
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 Mayfield West, NSW 2304
 pH 02 4968 9433
 fax 02 4968 0349
 samples.newcastle@alsenviro.com

ALS Environmental
Newcastle, NSW



CLIENT: Joseph Ferring **DATE REPORTED:** 23-Dec-2013
COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-021 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** LS_MW01_0.5

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	100%
2.36	100%
1.18	100%
0.600	99%
0.425	99%
0.300	99%
0.150	99%
0.075	97%

Samples analysed as received.

Sample Comments:

Analysed: 19-Dec-13

Loss on Pretreatment: NA

Limit of Reporting: 1%

Sample Description: Fines

Test Method: AS1289.3.6.1

NATA Accreditation: 825 Site: Newcastle
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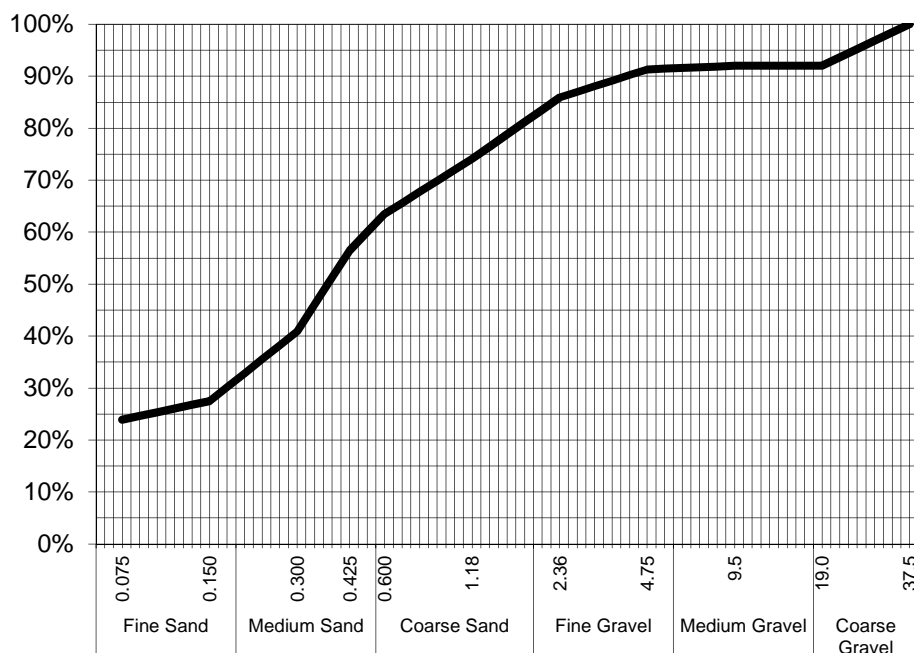
ALS Laboratory Group Pty Ltd
5/585 Maitland Road
Mayfield West, NSW 2304
pH 02 4968 9433
fax 02 4968 0349
samples.newcastle@alsenviro.com

ALS Environmental
Newcastle, NSW



CLIENT: Joseph Ferring **DATE REPORTED:** 23-Dec-2013
COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-022 / PSD
33 Saunders Street, Pyrmont
NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** LG_MW03_0.5

Particle Size Distribution



Particle Size (mm)	Percent Passing
37.5	100%
19.0	92%
9.5	92%
4.75	91%
2.36	86%
1.18	74%
0.600	64%
0.425	57%
0.300	41%
0.150	28%
0.075	24%

Samples analysed as received.

Sample Comments:

Analysed: 19-Dec-13

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description: Sand, fines and gravel

Test Method: AS1289.3.6.1

NATA Accreditation: 825 Site: Newcastle
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Laboratory Supervisor, Newcastle
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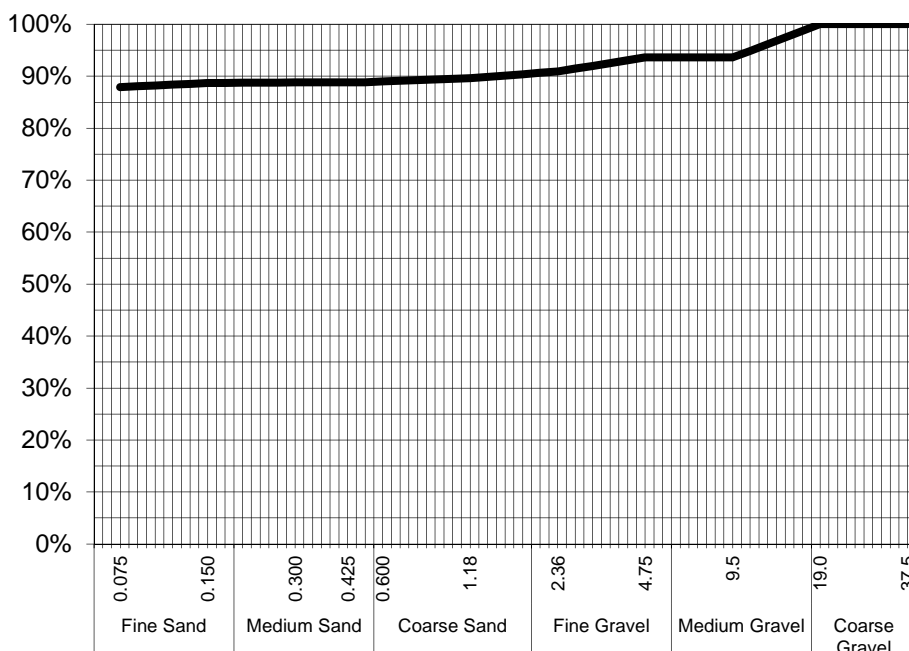
ALS Laboratory Group Pty Ltd
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 Mayfield West, NSW 2304
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 fax 02 4968 0349
 samples.newcastle@alsenviro.com

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Newcastle, NSW



CLIENT: Joseph Ferring **DATE REPORTED:** 23-Dec-2013
COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-023 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** LD_MW05_2.0

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	94%
4.75	94%
2.36	91%
1.18	90%
0.600	89%
0.425	89%
0.300	89%
0.150	89%
0.075	88%

Samples analysed as received.

Sample Comments:

Loss on Pretreatment NA

Sample Description: Fines and gravel

Test Method: AS1289.3.6.1

Analysed: 19-Dec-13

Limit of Reporting: 1%

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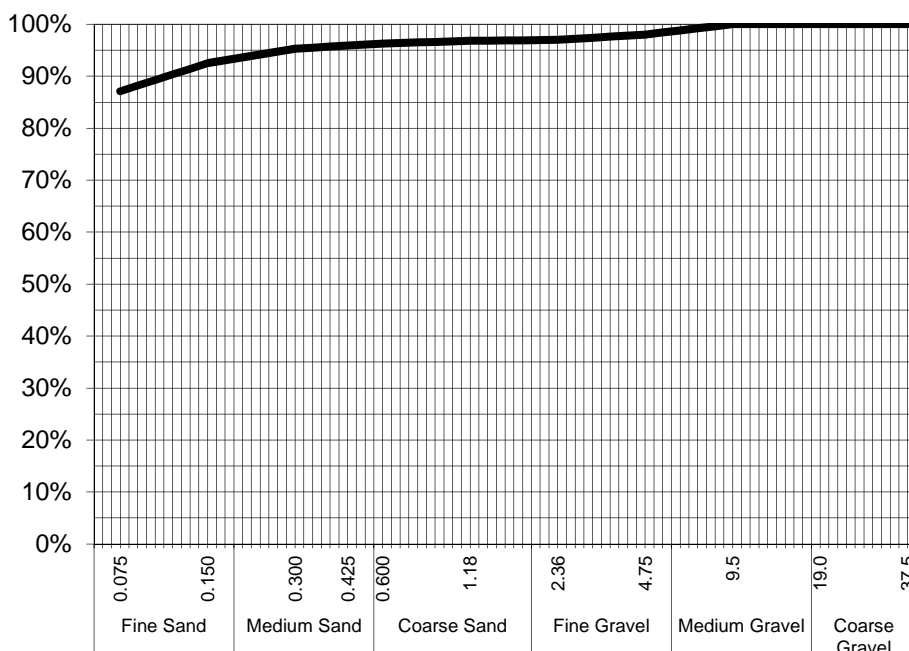
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 pH 02 4968 9433
 fax 02 4968 0349
 samples.newcastle@alsenviro.com

ALS Environmental
Newcastle, NSW



CLIENT: Joseph Ferring **DATE REPORTED:** 23-Dec-2013
COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-024 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** LJ_SB07_0.8

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	98%
2.36	97%
1.18	97%
0.600	96%
0.425	96%
0.300	95%
0.150	93%
0.075	87%

Samples analysed as received.

Sample Comments:

Analysed: 19-Dec-13

Loss on Pretreatment: NA

Limit of Reporting: 1%

Sample Description: Fines and sand

Test Method: AS1289.3.6.1

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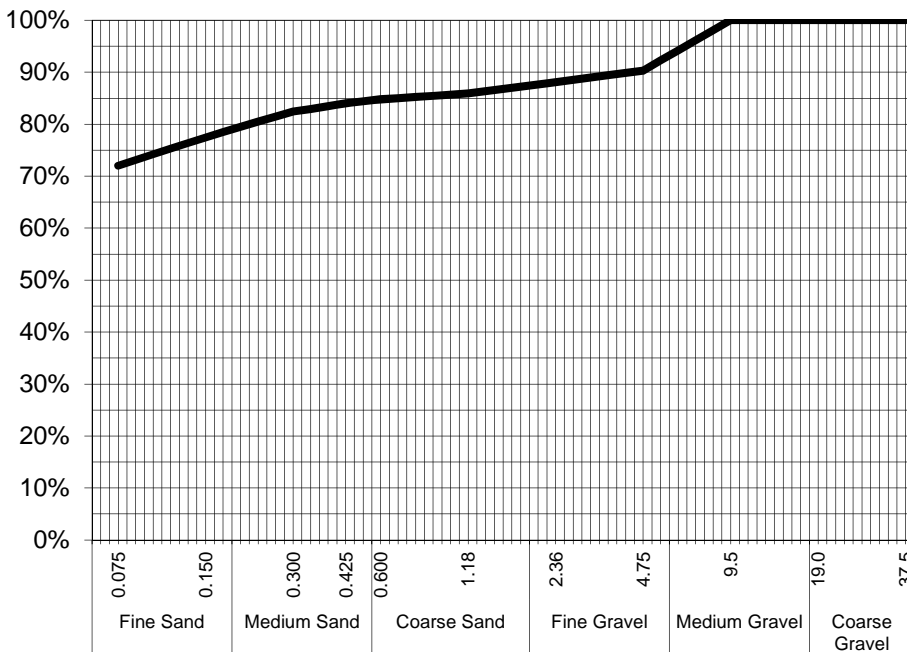
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 5/585 Maitland Road
 Mayfield West, NSW 2304
 pH 02 4968 9433
 fax 02 4968 0349
 samples.newcastle@alsenviro.com

ALS Environmental
Newcastle, NSW



CLIENT: Joseph Ferring **DATE REPORTED:** 23-Dec-2013
COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-025 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** LT_MW04_0.5

Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	90%
2.36	88%
1.18	86%
0.600	85%
0.425	84%
0.300	82%
0.150	78%
0.075	72%

Samples analysed as received.

Sample Comments:

Analysed: 19-Dec-13

Loss on Pretreatment: NA

Limit of Reporting: 1%

Sample Description: Fines, sand and gravel

Test Method: AS1289.3.6.1

NATA Accreditation: 825 Site: Newcastle
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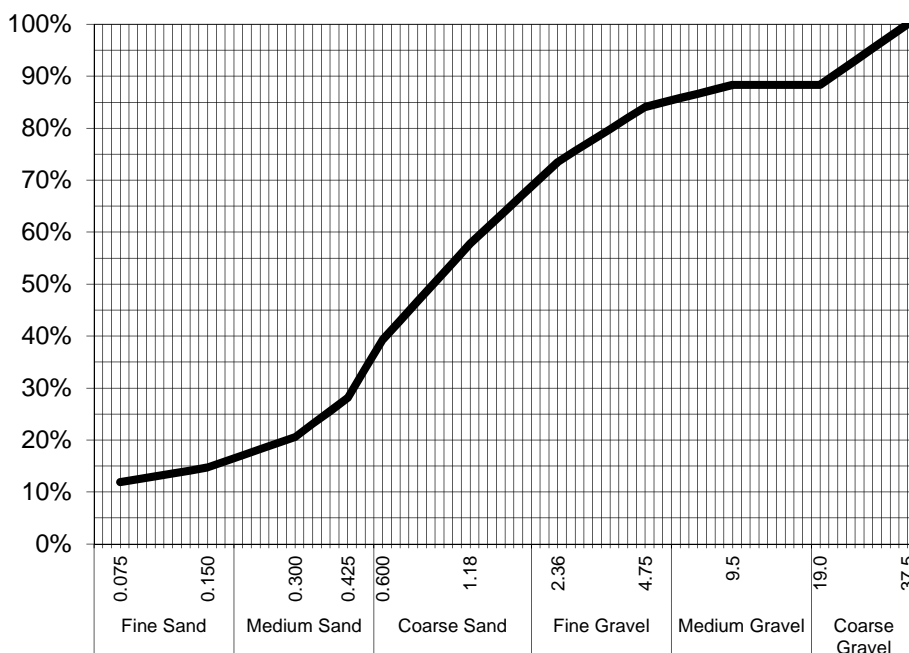
ALS Laboratory Group Pty Ltd
 5/585 Maitland Road
 Mayfield West, NSW 2304
 pH 02 4968 9433
 fax 02 4968 0349
 samples.newcastle@alsenviro.com

ALS Environmental
Newcastle, NSW



CLIENT: Joseph Ferring **DATE REPORTED:** 23-Dec-2013
COMPANY: Enviro Resources Management **DATE RECEIVED:** 13-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1327324-026 / PSD
 33 Saunders Street, Pyrmont
 NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** LU_SB02_0.1

Particle Size Distribution



Particle Size (mm)	Percent Passing
37.5	100%
19.0	88%
9.5	88%
4.75	84%
2.36	74%
1.18	58%
0.600	39%
0.425	28%
0.300	21%
0.150	15%
0.075	12%

Samples analysed as received.

Sample Comments:

Analysed: 19-Dec-13

Loss on Pretreatment: NA

Limit of Reporting: 1%

Sample Description: Sand, gravel and fines

Test Method: AS1289.3.6.1

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 Laboratory Supervisor, Newcastle
Authorised Signatory



NATA Accreditation: 825 Site: Newcastle
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QUALITY CONTROL REPORT

Work Order	: ES1327324	Page	: 1 of 5
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 13-DEC-2013
C-O-C number	: ----	Issue Date	: 23-DEC-2013
Sampler	: ----	No. of samples received	: 26
Order number	: ----	No. of samples analysed	: 26
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited
Laboratory 825

Accredited for
compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC



Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA002 : pH (Soils) (QC Lot: 3213542)									
ES1327147-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	9.8	9.8	0.0	0% - 20%
ES1327287-006	Anonymous	EA002: pH Value	----	0.1	pH Unit	4.2	4.1	0.0	0% - 20%
EA002 : pH (Soils) (QC Lot: 3213547)									
ES1327324-009	BM_SB01_0.5	EA002: pH Value	----	0.1	pH Unit	7.8	7.7	0.0	0% - 20%
ES1327324-019	LQ_MW07_0.5	EA002: pH Value	----	0.1	pH Unit	7.7	7.8	0.0	0% - 20%
ED007: Exchangeable Cations (QC Lot: 3215648)									
ES1327324-005	BE_MW09_0.9	ED007: Exchangeable Calcium	----	0.1	meq/100g	40.2	39.4	2.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	1.1	1.1	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.2	0.2	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	41.7	40.9	2.0	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
ES1327324-014	LL_SB12_0.5	ED007: Exchangeable Calcium	----	0.1	meq/100g	4.3	4.5	5.7	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	7.0	7.6	8.9	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	1.8	2.0	9.1	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	13.3	14.3	7.8	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
ED007: Exchangeable Cations (QC Lot: 3215649)									
ES1327324-025	LT_MW04_0.5	ED007: Exchangeable Calcium	----	0.1	meq/100g	2.7	2.8	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	5.7	5.8	2.9	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	1.0	1.0	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	9.6	9.8	2.6	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
EP004: Organic Matter (QC Lot: 3217920)									
ES1327324-001	BH_SB07_0.2	EP004: Organic Matter	----	0.5	%	<0.5	<0.5	0.0	No Limit
		EP004: Total Organic Carbon	----	0.5	%	<0.5	<0.5	0.0	No Limit
ES1327324-011	LE_SB01_1.0	EP004: Organic Matter	----	0.5	%	0.7	0.7	0.0	No Limit
		EP004: Total Organic Carbon	----	0.5	%	<0.5	<0.5	0.0	No Limit
EP004: Organic Matter (QC Lot: 3217921)									
ES1327324-021	LS_MW01_0.5	EP004: Organic Matter	----	0.5	%	1.1	<0.5	75.4	No Limit
		EP004: Total Organic Carbon	----	0.5	%	0.6	<0.5	24.7	No Limit



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
ED007: Exchangeable Cations (QCLot: 3215648)									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Cations (QCLot: 3215649)									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
EP004: Organic Matter (QCLot: 3217920)									
EP004: Organic Matter	----	0.5	%	<0.5	4.58 %	93.8	85	105	
EP004: Total Organic Carbon	----	0.5	%	<0.5	2.66 %	93.7	84	106	
EP004: Organic Matter (QCLot: 3217921)									
EP004: Organic Matter	----	0.5	%	<0.5	4.58 %	99.1	85	105	
EP004: Total Organic Carbon	----	0.5	%	<0.5	2.66 %	98.9	84	106	

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						MS	Low
EP004: Organic Matter (QCLot: 3217920)							
ES1327324-002	BI_MW03_0.6	EP004: Organic Matter	----	0.48 %	79.2	----	----
		EP004: Total Organic Carbon	----	0.28 %	80.7	----	----
EP004: Organic Matter (QCLot: 3217921)							
ES1327324-026	LU_SB02_0.1	EP004: Organic Matter	----	0.48 %	105	----	----
		EP004: Total Organic Carbon	----	0.28 %	103	----	----



Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
EP004: Organic Matter (QCLot: 3217920)										
ES1327324-002	BI_MW03_0.6	EP004: Organic Matter	----	0.48 %	79.2	----	----	----	----	----
		EP004: Total Organic Carbon	----	0.28 %	80.7	----	----	----	----	----
EP004: Organic Matter (QCLot: 3217921)										
ES1327324-026	LU_SB02_0.1	EP004: Organic Matter	----	0.48 %	105	----	----	----	----	----
		EP004: Total Organic Carbon	----	0.28 %	103	----	----	----	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1327324	Page	: 1 of 10
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 13-DEC-2013
C-O-C number	: ----	Issue Date	: 23-DEC-2013
Sampler	: ----	No. of samples received	: 26
Order number	: ----	No. of samples analysed	: 26
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA002 : pH (Soils)								
Soil Glass Jar - Unpreserved (EA002) LP_MW06_1.0, LG_MW03_0.5,	LS_MW01_0.5, LU_SB02_0.1	02-DEC-2013	16-DEC-2013	09-DEC-2013	✖	16-DEC-2013	16-DEC-2013	✔
Soil Glass Jar - Unpreserved (EA002) BM_SB01_0.5,	LJ_SB07_0.8	04-DEC-2013	16-DEC-2013	11-DEC-2013	✖	16-DEC-2013	16-DEC-2013	✔
Soil Glass Jar - Unpreserved (EA002) LT_MW04_0.5		06-DEC-2013	16-DEC-2013	13-DEC-2013	✖	16-DEC-2013	16-DEC-2013	✔
Soil Glass Jar - Unpreserved (EA002) LN_MW03_0.5		08-NOV-2013	16-DEC-2013	15-NOV-2013	✖	16-DEC-2013	16-DEC-2013	✔
Soil Glass Jar - Unpreserved (EA002) LM_MW02_0.5,	LR_MW04_0.5	11-NOV-2013	16-DEC-2013	18-NOV-2013	✖	16-DEC-2013	16-DEC-2013	✔
Soil Glass Jar - Unpreserved (EA002) LO_SB01_0.5		12-NOV-2013	16-DEC-2013	19-NOV-2013	✖	16-DEC-2013	16-DEC-2013	✔
Soil Glass Jar - Unpreserved (EA002) BK_SB06_0.6		14-NOV-2013	16-DEC-2013	21-NOV-2013	✖	16-DEC-2013	16-DEC-2013	✔
Soil Glass Jar - Unpreserved (EA002) LI_MW08_0.5		15-NOV-2013	16-DEC-2013	22-NOV-2013	✖	16-DEC-2013	16-DEC-2013	✔
Soil Glass Jar - Unpreserved (EA002) LQ_MW07_0.5		19-NOV-2013	16-DEC-2013	26-NOV-2013	✖	16-DEC-2013	16-DEC-2013	✔
Soil Glass Jar - Unpreserved (EA002) LF_SB02_0.1		21-NOV-2013	16-DEC-2013	28-NOV-2013	✖	16-DEC-2013	16-DEC-2013	✔
Soil Glass Jar - Unpreserved (EA002) LA_MW02_1.0,	LE_SB01_1.0	22-NOV-2013	16-DEC-2013	29-NOV-2013	✖	16-DEC-2013	16-DEC-2013	✔
Soil Glass Jar - Unpreserved (EA002) BV_SB07_0.25, LD_MW05_2.0	BL_SB01_0.25,	25-NOV-2013	16-DEC-2013	02-DEC-2013	✖	16-DEC-2013	16-DEC-2013	✔
Soil Glass Jar - Unpreserved (EA002) BP_MW01_0.25, BX_MW02_0.5	BE_MW09_0.9,	26-NOV-2013	16-DEC-2013	03-DEC-2013	✖	16-DEC-2013	16-DEC-2013	✔
Soil Glass Jar - Unpreserved (EA002) LL_SB12_0.5		30-NOV-2013	16-DEC-2013	07-DEC-2013	✖	16-DEC-2013	16-DEC-2013	✔



Matrix: SOIL

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA150: Particle Sizing							
Snap Lock Bag (EA150) LG_MW03_0.5, LU_SB02_0.1	02-DEC-2013	---	31-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) LP_MW06_1.0, LS_MW01_0.5	02-DEC-2013	---	31-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) BM_SB01_0.5, LJ_SB07_0.8	04-DEC-2013	---	02-JUN-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) LT_MW04_0.5	06-DEC-2013	---	04-JUN-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) LN_MW03_0.5	08-NOV-2013	---	07-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) LM_MW02_0.5, LR_MW04_0.5	11-NOV-2013	---	10-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) LO_SB01_0.5	12-NOV-2013	---	11-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) BK_SB06_0.6	14-NOV-2013	---	13-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) LI_MW08_0.5	15-NOV-2013	---	14-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) LQ_MW07_0.5	19-NOV-2013	---	18-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) BI_MW03_0.6	20-NOV-2013	---	19-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) LF_SB02_0.1	21-NOV-2013	---	20-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) LA_MW02_1.0, LE_SB01_1.0	22-NOV-2013	---	21-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) BL_SB01_0.25, LD_MW05_2.0	25-NOV-2013	---	24-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) BP_MW01_0.25, BE_MW09_0.9, BX_MW02_0.5	26-NOV-2013	---	25-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) LL_SB12_0.5	30-NOV-2013	---	29-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓



Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA150: Soil Classification based on Particle Size							
Snap Lock Bag (EA150) LG_MW03_0.5, LU_SB02_0.1	02-DEC-2013	---	31-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) LP_MW06_1.0, LS_MW01_0.5	02-DEC-2013	---	31-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) BM_SB01_0.5, LJ_SB07_0.8	04-DEC-2013	---	02-JUN-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) LT_MW04_0.5	06-DEC-2013	---	04-JUN-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) LN_MW03_0.5	08-NOV-2013	---	07-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) LM_MW02_0.5, LR_MW04_0.5	11-NOV-2013	---	10-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) LO_SB01_0.5	12-NOV-2013	---	11-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) BK_SB06_0.6	14-NOV-2013	---	13-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) LI_MW08_0.5	15-NOV-2013	---	14-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) LQ_MW07_0.5	19-NOV-2013	---	18-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) BI_MW03_0.6	20-NOV-2013	---	19-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) LF_SB02_0.1	21-NOV-2013	---	20-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) LA_MW02_1.0, LE_SB01_1.0	22-NOV-2013	---	21-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) BL_SB01_0.25, LD_MW05_2.0	25-NOV-2013	---	24-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) BP_MW01_0.25, BE_MW09_0.9, BX_MW02_0.5	26-NOV-2013	---	25-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓
Soil Glass Jar - Unpreserved (EA150) LL_SB12_0.5	30-NOV-2013	---	29-MAY-2014	----	23-DEC-2013	17-JUN-2014	✓



Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
ED007: Exchangeable Cations								
Soil Glass Jar - Unpreserved (ED007) LP_MW06_1.0, LG_MW03_0.5,	LS_MW01_0.5, LU_SB02_0.1	02-DEC-2013	17-DEC-2013	30-DEC-2013	✓	18-DEC-2013	30-DEC-2013	✓
Soil Glass Jar - Unpreserved (ED007) BM_SB01_0.5,	LJ_SB07_0.8	04-DEC-2013	17-DEC-2013	01-JAN-2014	✓	18-DEC-2013	01-JAN-2014	✓
Soil Glass Jar - Unpreserved (ED007) LT_MW04_0.5		06-DEC-2013	17-DEC-2013	03-JAN-2014	✓	18-DEC-2013	03-JAN-2014	✓
Soil Glass Jar - Unpreserved (ED007) LN_MW03_0.5		08-NOV-2013	17-DEC-2013	06-DEC-2013	*	18-DEC-2013	06-DEC-2013	*
Soil Glass Jar - Unpreserved (ED007) LM_MW02_0.5,	LR_MW04_0.5	11-NOV-2013	17-DEC-2013	09-DEC-2013	*	18-DEC-2013	09-DEC-2013	*
Soil Glass Jar - Unpreserved (ED007) LO_SB01_0.5		12-NOV-2013	17-DEC-2013	10-DEC-2013	*	18-DEC-2013	10-DEC-2013	*
Soil Glass Jar - Unpreserved (ED007) BK_SB06_0.6		14-NOV-2013	17-DEC-2013	12-DEC-2013	*	18-DEC-2013	12-DEC-2013	*
Soil Glass Jar - Unpreserved (ED007) LI_MW08_0.5		15-NOV-2013	17-DEC-2013	13-DEC-2013	*	18-DEC-2013	13-DEC-2013	*
Soil Glass Jar - Unpreserved (ED007) LQ_MW07_0.5		19-NOV-2013	17-DEC-2013	17-DEC-2013	✓	18-DEC-2013	17-DEC-2013	*
Soil Glass Jar - Unpreserved (ED007) LF_SB02_0.1		21-NOV-2013	17-DEC-2013	19-DEC-2013	✓	18-DEC-2013	19-DEC-2013	✓
Soil Glass Jar - Unpreserved (ED007) LA_MW02_1.0,	LE_SB01_1.0	22-NOV-2013	17-DEC-2013	20-DEC-2013	✓	18-DEC-2013	20-DEC-2013	✓
Soil Glass Jar - Unpreserved (ED007) BL_SB01_0.25,	LD_MW05_2.0	25-NOV-2013	17-DEC-2013	23-DEC-2013	✓	18-DEC-2013	23-DEC-2013	✓
Soil Glass Jar - Unpreserved (ED007) BE_MW09_0.9,	BX_MW02_0.5	26-NOV-2013	17-DEC-2013	24-DEC-2013	✓	18-DEC-2013	24-DEC-2013	✓
Soil Glass Jar - Unpreserved (ED007) LL_SB12_0.5		30-NOV-2013	17-DEC-2013	28-DEC-2013	✓	18-DEC-2013	28-DEC-2013	✓



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP004: Organic Matter								
Soil Glass Jar - Unpreserved (EP004) LP_MW06_1.0, LG_MW03_0.5,	LS_MW01_0.5, LU_SB02_0.1	02-DEC-2013	18-DEC-2013	30-DEC-2013	✔	18-DEC-2013	30-DEC-2013	✔
Soil Glass Jar - Unpreserved (EP004) BM_SB01_0.5,	LJ_SB07_0.8	04-DEC-2013	18-DEC-2013	01-JAN-2014	✔	18-DEC-2013	01-JAN-2014	✔
Soil Glass Jar - Unpreserved (EP004) LT_MW04_0.5		06-DEC-2013	18-DEC-2013	03-JAN-2014	✔	18-DEC-2013	03-JAN-2014	✔
Soil Glass Jar - Unpreserved (EP004) LN_MW03_0.5		08-NOV-2013	18-DEC-2013	06-DEC-2013	✖	18-DEC-2013	06-DEC-2013	✖
Soil Glass Jar - Unpreserved (EP004) LM_MW02_0.5,	LR_MW04_0.5	11-NOV-2013	18-DEC-2013	09-DEC-2013	✖	18-DEC-2013	09-DEC-2013	✖
Soil Glass Jar - Unpreserved (EP004) LO_SB01_0.5		12-NOV-2013	18-DEC-2013	10-DEC-2013	✖	18-DEC-2013	10-DEC-2013	✖
Soil Glass Jar - Unpreserved (EP004) BK_SB06_0.6		14-NOV-2013	18-DEC-2013	12-DEC-2013	✖	18-DEC-2013	12-DEC-2013	✖
Soil Glass Jar - Unpreserved (EP004) LI_MW08_0.5		15-NOV-2013	18-DEC-2013	13-DEC-2013	✖	18-DEC-2013	13-DEC-2013	✖
Soil Glass Jar - Unpreserved (EP004) LQ_MW07_0.5		19-NOV-2013	18-DEC-2013	17-DEC-2013	✖	18-DEC-2013	17-DEC-2013	✖
Soil Glass Jar - Unpreserved (EP004) BI_MW03_0.6		20-NOV-2013	18-DEC-2013	18-DEC-2013	✔	18-DEC-2013	18-DEC-2013	✔
Soil Glass Jar - Unpreserved (EP004) LF_SB02_0.1		21-NOV-2013	18-DEC-2013	19-DEC-2013	✔	18-DEC-2013	19-DEC-2013	✔
Soil Glass Jar - Unpreserved (EP004) LA_MW02_1.0,	LE_SB01_1.0	22-NOV-2013	18-DEC-2013	20-DEC-2013	✔	18-DEC-2013	20-DEC-2013	✔
Soil Glass Jar - Unpreserved (EP004) BV_SB07_0.25, LD_MW05_2.0	BL_SB01_0.25,	25-NOV-2013	18-DEC-2013	23-DEC-2013	✔	18-DEC-2013	23-DEC-2013	✔
Soil Glass Jar - Unpreserved (EP004) BH_SB07_0.2, BE_MW09_0.9,	BP_MW01_0.25, BX_MW02_0.5	26-NOV-2013	18-DEC-2013	24-DEC-2013	✔	18-DEC-2013	24-DEC-2013	✔
Soil Glass Jar - Unpreserved (EP004) LL_SB12_0.5		30-NOV-2013	18-DEC-2013	28-DEC-2013	✔	18-DEC-2013	28-DEC-2013	✔



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Exchangeable Cations	ED007	3	26	11.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Organic Matter	EP004	3	29	10.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	4	39	10.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Exchangeable Cations	ED007	2	26	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Organic Matter	EP004	2	29	6.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Exchangeable Cations	ED007	2	26	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Organic Matter	EP004	2	29	6.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Organic Matter	EP004	2	29	6.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

<i>Analytical Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Particle Size Analysis (Sieving)	EA150	SOIL	Particle Size Analysis by Sieving according to AS1289.3.6.1 - 2009
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Organic Matter	EP004	SOIL	AS1289.4.1.1 - 1997., Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM (2013) Schedule B(3) (Method 105)
<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH ₄ Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Organic Matter	EP004-PR	SOIL	AS1289.4.1.1 - 1997., Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM (2013) Schedule B(3) (Method 105)



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: SOIL

Method Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002 : pH (Soils)						
Soil Glass Jar - Unpreserved LP_MW06_1.0, LS_MW01_0.5, LG_MW03_0.5, LU_SB02_0.1	16-DEC-2013	09-DEC-2013	7	----	----	----
Soil Glass Jar - Unpreserved BM_SB01_0.5, LJ_SB07_0.8	16-DEC-2013	11-DEC-2013	5	----	----	----
Soil Glass Jar - Unpreserved LT_MW04_0.5	16-DEC-2013	13-DEC-2013	3	----	----	----
Soil Glass Jar - Unpreserved LN_MW03_0.5	16-DEC-2013	15-NOV-2013	31	----	----	----
Soil Glass Jar - Unpreserved LM_MW02_0.5, LR_MW04_0.5	16-DEC-2013	18-NOV-2013	28	----	----	----
Soil Glass Jar - Unpreserved LO_SB01_0.5	16-DEC-2013	19-NOV-2013	27	----	----	----
Soil Glass Jar - Unpreserved BK_SB06_0.6	16-DEC-2013	21-NOV-2013	25	----	----	----
Soil Glass Jar - Unpreserved LI_MW08_0.5	16-DEC-2013	22-NOV-2013	24	----	----	----
Soil Glass Jar - Unpreserved LQ_MW07_0.5	16-DEC-2013	26-NOV-2013	20	----	----	----
Soil Glass Jar - Unpreserved LF_SB02_0.1	16-DEC-2013	28-NOV-2013	18	----	----	----



Matrix: **SOIL**

Method Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002 : pH (Soils) - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved LA_MW02_1.0, LE_SB01_1.0	16-DEC-2013	29-NOV-2013	17	----	----	----
Soil Glass Jar - Unpreserved BV_SB07_0.25, BL_SB01_0.25, LD_MW05_2.0	16-DEC-2013	02-DEC-2013	14	----	----	----
Soil Glass Jar - Unpreserved BP_MW01_0.25, BE_MW09_0.9, BX_MW02_0.5	16-DEC-2013	03-DEC-2013	13	----	----	----
Soil Glass Jar - Unpreserved LL_SB12_0.5	16-DEC-2013	07-DEC-2013	9	----	----	----
ED007: Exchangeable Cations						
Soil Glass Jar - Unpreserved LN_MW03_0.5	17-DEC-2013	06-DEC-2013	11	18-DEC-2013	06-DEC-2013	12
Soil Glass Jar - Unpreserved LM_MW02_0.5, LR_MW04_0.5	17-DEC-2013	09-DEC-2013	8	18-DEC-2013	09-DEC-2013	9
Soil Glass Jar - Unpreserved LO_SB01_0.5	17-DEC-2013	10-DEC-2013	7	18-DEC-2013	10-DEC-2013	8
Soil Glass Jar - Unpreserved BK_SB06_0.6	17-DEC-2013	12-DEC-2013	5	18-DEC-2013	12-DEC-2013	6
Soil Glass Jar - Unpreserved LI_MW08_0.5	17-DEC-2013	13-DEC-2013	4	18-DEC-2013	13-DEC-2013	5
Soil Glass Jar - Unpreserved LQ_MW07_0.5	----	----	----	18-DEC-2013	17-DEC-2013	1
EP004: Organic Matter						
Soil Glass Jar - Unpreserved LN_MW03_0.5	18-DEC-2013	06-DEC-2013	12	18-DEC-2013	06-DEC-2013	12
Soil Glass Jar - Unpreserved LM_MW02_0.5, LR_MW04_0.5	18-DEC-2013	09-DEC-2013	9	18-DEC-2013	09-DEC-2013	9
Soil Glass Jar - Unpreserved LO_SB01_0.5	18-DEC-2013	10-DEC-2013	8	18-DEC-2013	10-DEC-2013	8
Soil Glass Jar - Unpreserved BK_SB06_0.6	18-DEC-2013	12-DEC-2013	6	18-DEC-2013	12-DEC-2013	6
Soil Glass Jar - Unpreserved LI_MW08_0.5	18-DEC-2013	13-DEC-2013	5	18-DEC-2013	13-DEC-2013	5
Soil Glass Jar - Unpreserved LQ_MW07_0.5	18-DEC-2013	17-DEC-2013	1	18-DEC-2013	17-DEC-2013	1

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

CHAIN OF CUSTODY
ALC Laboratory: *Memoir Inc. 2*

CLIENT: **PRM**
OFFICE: **Payment**
PROJECT: **Project Synphorb**

TURNAROUND REQUIREMENTS: Standard TAT (last date dep. (Standard TAT only for sample for same field no.)) Non Standard or urgent TAT (last date dep. (Non Standard or urgent TAT last date dep. (LTD, Exped. Signature))
ALS QUOTE NO.: **SY79413**

FOR LABORATORY USE ONLY (Client)
Cesium shell intact? Yes No N/A
Fretted / frozen bag intact, present upon receipt? Yes No N/A
Random Sample Temperature on Receipt: Yes No N/A

ORDER NUMBER: **0224193**
PROJECT MANAGER: **Joe Ferny**
SAMPLER: **Jack Ferny**

CONTACT PI: **0427404462**
SAMPLER MODEL: **EDD FORMAT for default**
RELINQUISHED BY: **DATE/TIME:**

RECEIVED BY: **DATE/TIME:**
RECEIVED BY: **DATE/TIME:**
RECEIVED BY: **DATE/TIME:**

COC emailed to ALS? (YES / NO)
Email Reports to (will default to PM if no other addresses are listed): **Synphorb management.com**
Email Invoice to (will default to PM if no other addresses are listed):

RECEIVED BY: **DATE/TIME:**
RECEIVED BY: **DATE/TIME:**
RECEIVED BY: **DATE/TIME:**

RECEIVED BY: **DATE/TIME:**
RECEIVED BY: **DATE/TIME:**
RECEIVED BY: **DATE/TIME:**

COMMENTS/SPECIAL HANDLING/STORAGE OR OTHER: **Please batch with other Bayswater soil samples arriving today (batch confirm 13/13)**

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	(refer to)	TOTAL CONTAINERS	ANALYSIS REQUIRED INCLUDING SUTCHS (NIL, Soil Clean must be hand to attract salt/pest) (When Matrix is reported, specify Total (undiluted) bottle received or Diluted (if dilution factor reported))							Additional Information		
							S-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B, Mo, Ti, Se)	S-24 TRH (C6-C40) STEXX, PAH, Phenols	VOC Target Scan	PCB	pH (1:5)	Exchangeable cations (ED007)		PFOS/PFOA	Asbestos (absence/presence)
1	BF-SB05-3.0	09/12/13	SOIL	Jar		1	X	X	X	X	X	X	X	X	X	
2	BF-SB06-2.7					1	X	X	X	X	X	X	X	X	X	
3	BF-SB07-2.9					1	X	X	X	X	X	X	X	X	X	
4	BF-MND6-3.0					1	X	X	X	X	X	X	X	X	X	
5	TB															
6	TS-2	6/12														
7	TSC-2	6/12														

WATER CONTAMINANT CODES: 1 - Unfiltered Water, 2 - Filtered Water, 3 - Treated Water, 4 - Stormwater, 5 - Groundwater, 6 - Surface Water, 7 - Other
 AIR CONTAMINANT CODES: 1 - Ambient Air, 2 - Exhaust Air, 3 - Stack Air, 4 - Other
 SOIL CONTAMINANT CODES: 1 - Topsoil, 2 - Subsoil, 3 - Roadside, 4 - Other
 SEDIMENT CONTAMINANT CODES: 1 - Riverbank, 2 - Other

Environmental Division
Sydney
Work Order
ES1327429

Telephone: +61-2-8784 8555

TAT

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: ES1327429		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	Page	: 1 of 2
Order number	: 0224198	Quote number	: ES2013ENVRES0369 (SY/794/13)
C-O-C number	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER		
Sampler	: JF		

Dates

Date Samples Received	: 13-DEC-2013	Issue Date	: 14-DEC-2013 11:51
Client Requested Due Date	: 18-DEC-2013	Scheduled Reporting Date	: 18-DEC-2013

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 6.8°C SYD - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 7
Security Seal	: Intact.	No. of samples analysed	: 7

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **TRIP BLANK and TRIP SPIKE received extra, to be analysed for TPH C6-C9/BTEX.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture	SOIL - S-24 TRH/BTEXN/PAH + Phenols
ES1327429-001	09-DEC-2013 15:00	BF_SB05_3.0	✓		✓
ES1327429-002	09-DEC-2013 15:00	BF_SB06_2.7	✓		✓
ES1327429-003	09-DEC-2013 15:00	BF_SB07_2.9	✓		✓
ES1327429-004	09-DEC-2013 15:00	BF_MW06_3.0	✓		✓
ES1327429-005	09-DEC-2013 15:00	TB		✓	
ES1327429-006	09-DEC-2013 15:00	TS		✓	
ES1327429-007	09-DEC-2013 15:00	TSC		✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA)	Email	joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	joseph.ferring@erm.com
- Chain of Custody (CoC) (COC)	Email	joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	joseph.ferring@erm.com
- EDI Format - XTab (XTAB)	Email	joseph.ferring@erm.com

SYMPHONY MACGEN

- *AU Certificate of Analysis - NATA (COA)	Email	symphony.macgen@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	symphony.macgen@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	symphony.macgen@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	symphony.macgen@erm.com
- Chain of Custody (CoC) (COC)	Email	symphony.macgen@erm.com
- EDI Format - ENMRG (ENMRG)	Email	symphony.macgen@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	symphony.macgen@erm.com
- EDI Format - ESDAT (ESDAT)	Email	symphony.macgen@erm.com
- EDI Format - XTab (XTAB)	Email	symphony.macgen@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
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CERTIFICATE OF ANALYSIS

Work Order : ES1327429 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : Project Symphony Order number : 0224198 C-O-C number : ---- Sampler : JF Site : BAYSWATER Quote number : SY/794/13	Page : 1 of 7 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 13-DEC-2013 Issue Date : 18-DEC-2013 No. of samples received : 7 No. of samples analysed : 7
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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Phalak Inthaksono	Laboratory Manager - Organics	Sydney Organics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP080: The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.**



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				BF_SB05_3.0	BF_SB06_2.7	BF_SB07_2.9	BF_MW06_3.0	TB
				09-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00
				ES1327429-001	ES1327429-002	ES1327429-003	ES1327429-004	ES1327429-005
Compound	CAS Number	LOR	Unit					
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	14.4	19.2	12.7	16.1	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	6	7	10	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	7	7	7	12	----
Copper	7440-50-8	5	mg/kg	<5	6	16	15	----
Lead	7439-92-1	5	mg/kg	<5	8	20	26	----
Nickel	7440-02-0	2	mg/kg	<2	<2	4	<2	----
Zinc	7440-66-6	5	mg/kg	13	17	69	40	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BF_SB05_3.0	BF_SB06_2.7	BF_SB07_2.9	BF_MW06_3.0	TB
				09-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327429-001	ES1327429-002	ES1327429-003	ES1327429-004	ES1327429-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				BF_SB05_3.0	BF_SB06_2.7	BF_SB07_2.9	BF_MW06_3.0	TB
				09-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00
				ES1327429-001	ES1327429-002	ES1327429-003	ES1327429-004	ES1327429-005
Compound	CAS Number	LOR	Unit					
EP080: BTEXN - Continued								
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	66.2	74.0	74.1	65.5	----
2-Chlorophenol-D4	93951-73-6	0.1	%	86.5	96.5	92.7	85.3	----
2.4.6-Tribromophenol	118-79-6	0.1	%	84.0	87.2	76.0	73.9	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	95.8	102	101	93.3	----
Anthracene-d10	1719-06-8	0.1	%	87.8	92.3	92.3	82.0	----
4-Terphenyl-d14	1718-51-0	0.1	%	99.8	106	105	95.1	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	94.7	90.1	92.5	100	103
Toluene-D8	2037-26-5	0.1	%	90.6	89.8	91.4	95.9	93.2
4-Bromofluorobenzene	460-00-4	0.1	%	108	108	107	116	112



Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Client sample ID

Client sampling date / time

				TS	TSC	---	---	---
				09-DEC-2013 15:00	09-DEC-2013 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1327429-006	ES1327429-007	---	---	---
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	---	10	mg/kg	90	121	---	---	---
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	101	136	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	64	88	---	---	---
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	0.8	1.1	---	---	---
Toluene	108-88-3	0.5	mg/kg	18.8	24.3	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	2.3	3.0	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	10.9	14.2	---	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	4.3	5.7	---	---	---
^ Sum of BTEX	---	0.2	mg/kg	37.1	48.3	---	---	---
^ Total Xylenes	1330-20-7	0.5	mg/kg	15.2	19.9	---	---	---
Naphthalene	91-20-3	1	mg/kg	<1	<1	---	---	---
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	91.7	91.8	---	---	---
Toluene-D8	2037-26-5	0.1	%	91.2	89.7	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	104	100	---	---	---



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM): Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM): PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

QUALITY CONTROL REPORT

Work Order	: ES1327429	Page	: 1 of 11
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 13-DEC-2013
C-O-C number	: ----	Issue Date	: 18-DEC-2013
Sampler	: JF	No. of samples received	: 7
Order number	: 0224198	No. of samples analysed	: 7
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited
Laboratory 825

Accredited for
compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories

Celine Conceicao
Phalak Inthaksone

Position

Senior Spectroscopist
Laboratory Manager - Organics

Accreditation Category

Sydney Inorganics
Sydney Organics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC



Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA055: Moisture Content (QC Lot: 3216838)									
ES1327340-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	20.8	19.4	7.2	0% - 20%
ES1327422-024	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	12.4	15.4	21.0	0% - 50%
EA055: Moisture Content (QC Lot: 3216839)									
ES1327439-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	16.1	17.5	8.3	0% - 50%
ES1327521-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	7.2	7.3	1.5	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 3216120)									
ES1327422-032	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	14	10	33.3	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	20	9	79.6	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	9	14.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	10	6	37.5	No Limit
ES1327430-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	24	26	6.8	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	13	14	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	21	20	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	18	20	9.8	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	44	44	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3216121)									
ES1327422-032	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1327430-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3213773)									
ES1327422-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3213773) - continued									
ES1327422-001	Anonymous	EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1327422-024	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3213773)							
ES1327422-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1327422-024	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3213773) - continued									
ES1327422-024	Anonymous	EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3213532)									
ES1327368-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1327430-008	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3213772)									
ES1327422-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1327422-024	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3213532)									
ES1327368-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1327430-008	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3213772)									
ES1327422-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1327422-024	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 3213532)									
ES1327368-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 3213532) - continued									
ES1327430-008	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EG005T: Total Metals by ICP-AES (QCLot: 3216120)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	110	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	105	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	105	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	111	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	103	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	112	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	108	81	133	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3216121)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	93.8	66	112	
EP075(SIM)A: Phenolic Compounds (QCLot: 3213773)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	82.2	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	82.4	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	81.0	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	80.8	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	91.9	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	78.2	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	95.0	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	97.4	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	86.6	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	80.6	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	91.3	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	21.0	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3213773)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	94.8	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	96.4	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	91.7	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	93.9	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	94.3	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	93.6	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	95.0	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	95.1	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	95.2	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	96.7	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	89.2	70	118	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3213773) - continued								
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	91.6	77	123
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	85.2	76	122
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	# 70.7	71	113
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	72.7	71.7	113
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	73.5	72.4	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213532)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	98.0	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213772)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	110	71	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	105	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	89.3	64	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213532)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	100	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213772)								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	104	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	101	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
		50	mg/kg	----	150 mg/kg	71.3	63	131
EP080: BTEXN (QCLot: 3213532)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	87.6	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	98.0	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	98.2	58	118
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	95.1	60	120
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	100	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	88.6	62	138

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
						Low	High
EG005T: Total Metals by ICP-AES (QCLot: 3216120)							
ES1327422-032	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	109	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	108	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	111	70	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EG005T: Total Metals by ICP-AES (QCLot: 3216120) - continued								
ES1327422-032	Anonymous	EG005T: Copper	7440-50-8	125 mg/kg	111	70	130	
		EG005T: Lead	7439-92-1	125 mg/kg	109	70	130	
		EG005T: Nickel	7440-02-0	50 mg/kg	108	70	130	
		EG005T: Zinc	7440-66-6	125 mg/kg	108	70	130	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3216121)								
ES1327422-032	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	96.6	70	130	
EP075(SIM)A: Phenolic Compounds (QCLot: 3213773)								
ES1327422-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	82.6	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	95.7	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	84.6	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	88.8	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	21.4	20	130	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3213773)								
ES1327422-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	91.6	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	93.4	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213532)								
ES1327368-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	102	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213772)								
ES1327422-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	83.6	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	79.7	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	64.8	52	132	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213532)								
ES1327368-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	102	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213772)								
ES1327422-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	104	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	71.0	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	53.2	52	132	
EP080: BTEXN (QCLot: 3213532)								
ES1327368-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	82.5	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	87.5	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	92.4	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	91.1	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	92.7	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	82.3	70	130		



Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213532)											
ES1327368-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	102	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213532)											
ES1327368-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	102	----	70	130	----	----	
EP080: BTEXN (QCLot: 3213532)											
ES1327368-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	82.5	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	87.5	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	92.4	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	91.1	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	92.7	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	82.3	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213772)											
ES1327422-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	83.6	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	79.7	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	64.8	----	52	132	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213772)											
ES1327422-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	104	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	71.0	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	53.2	----	52	132	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3213773)											
ES1327422-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	82.6	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	95.7	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	84.6	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	88.8	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	21.4	----	20	130	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3213773)											
ES1327422-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	91.6	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	93.4	----	70	130	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3216120)											
ES1327422-032	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	109	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	108	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	111	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	111	----	70	130	----	----	

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 Work Order : ES1327429
 Client : ENVIRO RESOURCES MANAGEMENT
 Project : Project Symphony



Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EG005T: Total Metals by ICP-AES (QCLot: 3216120) - continued										
ES1327422-032	Anonymous	EG005T: Lead	7439-92-1	125 mg/kg	109	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	108	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	108	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3216121)										
ES1327422-032	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	96.6	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1327429	Page	: 1 of 6
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 13-DEC-2013
C-O-C number	: ----	Issue Date	: 18-DEC-2013
Sampler	: JF	No. of samples received	: 7
Order number	: 0224198	No. of samples analysed	: 7
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103) BF_SB05_3.0, BF_SB07_2.9, BF_SB06_2.7, BF_MW06_3.0	09-DEC-2013	----	----	----	17-DEC-2013	23-DEC-2013	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) BF_SB05_3.0, BF_SB07_2.9, BF_SB06_2.7, BF_MW06_3.0	09-DEC-2013	17-DEC-2013	07-JUN-2014	✓	17-DEC-2013	07-JUN-2014	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) BF_SB05_3.0, BF_SB07_2.9, BF_SB06_2.7, BF_MW06_3.0	09-DEC-2013	17-DEC-2013	06-JAN-2014	✓	18-DEC-2013	06-JAN-2014	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) BF_SB05_3.0, BF_SB07_2.9, BF_SB06_2.7, BF_MW06_3.0	09-DEC-2013	16-DEC-2013	23-DEC-2013	✓	17-DEC-2013	25-JAN-2014	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) BF_SB05_3.0, BF_SB07_2.9, BF_SB06_2.7, BF_MW06_3.0	09-DEC-2013	16-DEC-2013	23-DEC-2013	✓	17-DEC-2013	25-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) BF_SB05_3.0, BF_SB07_2.9, BF_SB06_2.7, BF_MW06_3.0	09-DEC-2013	16-DEC-2013	23-DEC-2013	✓	17-DEC-2013	25-JAN-2014	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) BF_SB05_3.0, BF_SB07_2.9, TB, TSC, BF_SB06_2.7, BF_MW06_3.0, TS,	09-DEC-2013	16-DEC-2013	23-DEC-2013	✓	16-DEC-2013	23-DEC-2013	✓



Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Soil Glass Jar - Unpreserved (EP080)								
BF_SB05_3.0, BF_SB07_2.9, TB, TSC	BF_SB06_2.7, BF_MW06_3.0, TS,	09-DEC-2013	16-DEC-2013	23-DEC-2013	✓	16-DEC-2013	23-DEC-2013	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Preparation Methods	Method	Matrix	Method Descriptions
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	3836291-007	----	Indeno(1.2.3.cd)pyrene	193-39-5	70.7 %	71-113%	Recovery less than lower control limit

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Matrix Spike outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.



CHAIN OF CUSTODY

ALS Laboratory
 please look →
 1000 West 12th Street, Suite 100
 Anchorage, Alaska 99501
 Phone: (907) 562-1111
 Fax: (907) 562-1112
 Email: info@alslab.com

Standard TAT (List due date):
 Standard TAT (List due date)
 Non-Standard or urgent TAT (List due date)

TURNAROUND REQUIREMENTS:
 Standard TAT may be longer for some tests e.g.,
 Ultra Trace Organics
 ALS QUOTE NO.: SY794713

PROJECT: Project Symphony
 ORDER NUMBER:
 PROJECT MANAGER:
 CONTACT PH:
 SAMPLER MOBILE:
 EDD FORMAT (for default):
 Email Reports to (will default to PM if no other addresses are listed):
 Email Invoice to (will default to PM if no other addresses are listed):

CLIENT: _____ OFFICE: _____

PROJECT: Project Symphony ORDER NUMBER: _____ PROJECT MANAGER: _____ CONTACT PH: _____

SAMPLER MOBILE: _____ EDD FORMAT (for default): _____

COC emailed to ALST? (YES / NO) _____

Email Reports to (will default to PM if no other addresses are listed): _____

Email Invoice to (will default to PM if no other addresses are listed): _____

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: _____

FOR LABORATORY USE ONLY (Circle)

Canopy Seal intact? Yes No

Free Ice / Frozen Ice bags present upon receipt? Yes No

Random Sample Temperature on Receipt: _____ °C

Other comment: _____

RECEIVED BY: _____ DATE/TIME: 13/12/13 16:05

RELINQUISHED BY: _____ DATE/TIME: 13/12/13 17:00

COG	1	2	3	4	5	6	7
OR	1	2	3	4	5	6	7

ALS USE	LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	CONTAINERS (orig/d)	ANALYSIS REQUIRED INCLUDING SUITES (NB. Suit Codes must be listed to protect suite price) Where Metals are required, specify Total (undiluted bottle required) or Dissolved (filtered bottle required).												Additional Information			
							5.2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, B, Mn, Ni, Pb, V, Zn, B, Mo, Tl, Se)	S-24 TRM(Co-CADYBTEXN, PAH, Phenols	VOC Target Scan	PCB	pH (1:5)	Exchangeable cations (ED007)	PFO3/PFOA	Asbestos (absence/presence)	Particle Sizing to 75µm (Slieve)	Organic Matter plus Total Organic Carbon (EPO4)					
	13	BF-8806-0.1	6-12-13	SOIL	DFB	2	X	X	X	X	X	X	X	X	X	X	X	X				
	14	BF-8806-0.5			D	1																
	15	BF-8806-1.5			D	1																
	16	BF-8807-0.1			DFB	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	HOLD	
	17	BF-8807-0.75			D	1																
	18	BF-8807-1.5			D	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	hydro meta	
	19	BF-8805-1.5	6/14/3		D	1																

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; DIC = Nitric Preserved Plastic; SH = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass; Unpreserved; AP = Autoclave Unpreserved Plastic; V = VOA Vol HCl Preserved; VO = VOA Vol Sodium Bicarbonate Preserved; US = VOA Vol Sulfuric Preserved; AV = Airflight Unpreserved Vol; SS = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Stainless Steel; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bin.

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : **ES1327432**

Client : **ENVIRO RESOURCES MANAGEMENT** **Laboratory** : Environmental Division Sydney

Contact : MR JOSEPH FERRING **Contact** : Barbara Hanna
Address : GROUND FLOOR **Address** : 277-289 Woodpark Road Smithfield
33 SAUNDERS STREET, PYRMONT NSW Australia 2164
NSW 2009
LOCKED BAG 24
BROADWAY NSW, AUSTRALIA 2007

E-mail : joseph.ferring@erm.com **E-mail** : Barbara.Hanna@alsglobal.com
Telephone : +61 02 8584 8888 **Telephone** : +61 2 8784 8555
Facsimile : +61 02 8584 8800 **Facsimile** : +61 2 8784 8555

Project : Project Symphony **Page** : 1 of 3
Order number : 0224193
C-O-C number : ---- **Quote number** : ES2013ENVRES0369 (SY/794/13)
Site : BAYSWATER
Sampler : HC **QC Level** : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 13-DEC-2013 **Issue Date** : 16-DEC-2013 14:43
Client Requested Due Date : 19-DEC-2013 **Scheduled Reporting Date** : **19-DEC-2013**

Delivery Details

Mode of Delivery : Carrier **Temperature** : 6.8°C SYD - Ice present
No. of coolers/boxes : 1 HARD **No. of samples received** : 24
Security Seal : Intact. **No. of samples analysed** : 14

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- Asbestos analysis will be subcontracted to ASET.
- **Samples received in appropriately pretreated and preserved containers.**
- **Breaches in recommended extraction / analysis holding times may occur. Please refer to the 'Proactive Holding Time Report' below for further details. Please contact ALS if further information is required.**
- **Sample T01 send to Envirolab**
- **Sample D01_061213_HC has not been received**
- **All analysis will be reported on the scheduled due date 19/12/13, except for PSD analysis will be reported on 27/12/13**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL	No analysis requested	SOIL - ASB-SOL (Subcontracted)	Asbestos - Count (Solid)	SOIL - EA002	pH (1:5)	SOIL - EA032	Electrical Conductivity (Saturated Paste)	SOIL - EA150*	Particle Size Analysis by Sieving (Default sieves from	SOIL - EA150H	Particle Size Analysis by Hydrometer: AS1289	SOIL - ED007	CEC / Exchangeable Cations (ED007) -All	SOIL - EP080	BTEXN
ES1327432-001	05-DEC-2013 15:00	BF_MW07_0.15		✓														
ES1327432-002	05-DEC-2013 15:00	BF_MW07_1.0	✓															
ES1327432-003	05-DEC-2013 15:00	BF_MW07_1.4	✓															
ES1327432-004	05-DEC-2013 15:00	BF_MW05_0.1	✓															
ES1327432-005	05-DEC-2013 15:00	BF_MW05_0.5			✓													
ES1327432-007	06-DEC-2013 15:00	BF_MW06_0.2			✓													
ES1327432-008	06-DEC-2013 15:00	BF_MW06_0.5	✓															
ES1327432-009	06-DEC-2013 15:00	BF_MW06_1.5	✓															
ES1327432-010	06-DEC-2013 15:00	BF_SB05_0.1	✓															
ES1327432-011	06-DEC-2013 15:00	BF_SB05_0.5			✓													
ES1327432-013	06-DEC-2013 15:00	BF_SB06_0.1			✓													
ES1327432-015	06-DEC-2013 15:00	BF_SB06_1.5	✓															
ES1327432-016	06-DEC-2013 15:00	BF_SB07_0.1			✓													
ES1327432-018	06-DEC-2013 15:00	BF_SB07_1.5										✓						
ES1327432-019	06-DEC-2013 15:00	BF_MW05_1.5	✓															
ES1327432-021	06-DEC-2013 15:00	BF_MW05_3.0				✓		✓		✓					✓			
ES1327432-023	28-NOV-2013 15:00	TS																✓
ES1327432-025	28-NOV-2013 15:00	TSC																✓

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-24 TRH/BTEXN/PAH + Phenols
ES1327432-001	05-DEC-2013 15:00	BF_MW07_0.15	✓		✓
ES1327432-005	05-DEC-2013 15:00	BF_MW05_0.5	✓		✓
ES1327432-006	05-DEC-2013 15:00	D01_051213_HC	✓		✓
ES1327432-007	06-DEC-2013 15:00	BF_MW06_0.2	✓		✓
ES1327432-011	06-DEC-2013 15:00	BF_SB05_0.5	✓		✓
ES1327432-014	06-DEC-2013 15:00	BF_SB06_0.5	✓		✓



Client Sample ID(s)	Date	Container	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-24 TRH/BTEXN/PAH + Phenols
ES1327432-017	06-DEC-2013 15:00	BF_SB07_0.75	✓		✓
ES1327432-018	06-DEC-2013 15:00	BF_SB07_1.5	✓		✓
ES1327432-020	06-DEC-2013 15:00	BF_MW07_2.4	✓		✓
ES1327432-021	06-DEC-2013 15:00	BF_MW05_3.0	✓		✓
ES1327432-022	06-DEC-2013 15:00	D01_061213_JG	✓		✓
ES1327432-024	28-NOV-2013 15:00	TB		✓	

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **SOIL**

Evaluation: ✘ = Holding time breach ; ✔ = Within holding time.

Method		Due for extraction	Due for analysis	Samples Received		Instructions Received	
Client Sample ID(s)	Container			Date	Evaluation	Date	Evaluation
EP080: TPH Volatiles/BTEX							
TB	Soil Glass Jar - Unpreserved	12-DEC-2013	----	13-DEC-2013	✘	13-DEC-2013	✘
TSC	Soil Glass Jar - Unpreserved	12-DEC-2013	----	13-DEC-2013	✘	13-DEC-2013	✘
TS	Soil Glass Jar - Unpreserved	12-DEC-2013	----	13-DEC-2013	✘	13-DEC-2013	✘

Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA) Email joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email joseph.ferring@erm.com
- Attachment - Report (SUBCO) Email joseph.ferring@erm.com
- Chain of Custody (CoC) (COC) Email joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG) Email joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM) Email joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT) Email joseph.ferring@erm.com
- EDI Format - XTab (XTAB) Email joseph.ferring@erm.com

SYMPHONY MACGEN

- *AU Certificate of Analysis - NATA (COA) Email symphony.macgen@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email symphony.macgen@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email symphony.macgen@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email symphony.macgen@erm.com
- Attachment - Report (SUBCO) Email symphony.macgen@erm.com
- Chain of Custody (CoC) (COC) Email symphony.macgen@erm.com
- EDI Format - ENMRG (ENMRG) Email symphony.macgen@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM) Email symphony.macgen@erm.com
- EDI Format - ESDAT (ESDAT) Email symphony.macgen@erm.com
- EDI Format - XTab (XTAB) Email symphony.macgen@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV) Email au.accounts@erm.com

CERTIFICATE OF ANALYSIS

Work Order	: ES1327432	Page	: 1 of 13
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0224193	Date Samples Received	: 13-DEC-2013
C-O-C number	: ----	Issue Date	: 24-DEC-2013
Sampler	: HC	No. of samples received	: 24
Site	: BAYSWATER	No. of samples analysed	: 14
Quote number	: SY/794/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA150H: Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1-2006 was not requested by the client. Typical sediment SPD values used for calculations and consequently NATA endorsement does not apply to hydrometer results.**
- **EP080: The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.**



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BF_MW07_0.15	BF_MW05_0.5	D01_051213_HC	BF_MW06_0.2	BF_SB05_0.5
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	06-DEC-2013 15:00	06-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327432-001	ES1327432-005	ES1327432-006	ES1327432-007	ES1327432-011
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	19.4	19.8	23.7	9.0	22.9
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	7	10	10	<5	9
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	11	15	13	14	12
Copper	7440-50-8	5	mg/kg	16	17	15	14	15
Lead	7439-92-1	5	mg/kg	12	13	16	6	17
Nickel	7440-02-0	2	mg/kg	10	14	10	10	10
Zinc	7440-66-6	5	mg/kg	50	54	48	28	48
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BF_MW07_0.15	BF_MW05_0.5	D01_051213_HC	BF_MW06_0.2	BF_SB05_0.5
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	06-DEC-2013 15:00	06-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327432-001	ES1327432-005	ES1327432-006	ES1327432-007	ES1327432-011
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	130	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	130	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BF_MW07_0.15	BF_MW05_0.5	D01_051213_HC	BF_MW06_0.2	BF_SB05_0.5
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	06-DEC-2013 15:00	06-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327432-001	ES1327432-005	ES1327432-006	ES1327432-007	ES1327432-011
EP080: BTEXN - Continued								
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	112	104	108	97.5	103
2-Chlorophenol-D4	93951-73-6	0.1	%	112	99.4	106	98.8	102
2.4.6-Tribromophenol	118-79-6	0.1	%	94.9	84.0	90.4	76.7	91.6
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	104	96.6	103	93.0	98.0
Anthracene-d10	1719-06-8	0.1	%	89.3	81.9	88.6	79.1	84.2
4-Terphenyl-d14	1718-51-0	0.1	%	83.5	76.3	82.3	73.2	78.2
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	96.9	94.2	99.4	100	100
Toluene-D8	2037-26-5	0.1	%	89.0	92.5	97.4	101	96.0
4-Bromofluorobenzene	460-00-4	0.1	%	95.0	98.1	103	106	103



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				BF_SB06_0.5	BF_SB07_0.75	BF_SB07_1.5	BF_MW07_2.4	BF_MW05_3.0
				06-DEC-2013 15:00	06-DEC-2013 15:00	06-DEC-2013 15:00	06-DEC-2013 15:00	06-DEC-2013 15:00
				ES1327432-014	ES1327432-017	ES1327432-018	ES1327432-020	ES1327432-021
Compound	CAS Number	LOR	Unit					
EA150: Particle Sizing								
+75µm	----	1	%	----	----	29	----	----
+75µm	----	1	%	----	----	----	----	13
+150µm	----	1	%	----	----	20	----	----
+150µm	----	1	%	----	----	----	----	6
+300µm	----	1	%	----	----	12	----	----
+300µm	----	1	%	----	----	----	----	2
+425µm	----	1	%	----	----	7	----	----
+425µm	----	1	%	----	----	----	----	2
+600µm	----	1	%	----	----	4	----	----
+600µm	----	1	%	----	----	----	----	1
+1180µm	----	1	%	----	----	3	----	----
+1180µm	----	1	%	----	----	----	----	1
+2.36mm	----	1	%	----	----	2	----	----
+2.36mm	----	1	%	----	----	----	----	<1
+4.75mm	----	1	%	----	----	2	----	----
+4.75mm	----	1	%	----	----	----	----	<1
+9.5mm	----	1	%	----	----	<1	----	----
+9.5mm	----	1	%	----	----	----	----	<1
+19.0mm	----	1	%	----	----	<1	----	----
+19.0mm	----	1	%	----	----	----	----	<1
+37.5mm	----	1	%	----	----	<1	----	----
+37.5mm	----	1	%	----	----	----	----	<1
+75.0mm	----	1	%	----	----	<1	----	----
+75.0mm	----	1	%	----	----	----	----	<1
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	----	----	----	----	5.9
EA032: Electrical Conductivity (saturated paste)								
Electrical Conductivity (Saturated Paste)	----	1	µS/cm	----	----	----	----	3050
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	19.2	15.2	21.6	18.2	16.5
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	----	36	----	----
Fines (<75 µm)	----	1	%	----	----	----	----	87



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BF_SB06_0.5	BF_SB07_0.75	BF_SB07_1.5	BF_MW07_2.4	BF_MW05_3.0
				06-DEC-2013 15:00	06-DEC-2013 15:00	06-DEC-2013 15:00	06-DEC-2013 15:00	06-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327432-014	ES1327432-017	ES1327432-018	ES1327432-020	ES1327432-021
EA150: Soil Classification based on Particle Size - Continued								
Sand (>75 µm)	----	1	%	----	----	----	----	12
Silt (2-60 µm)	----	1	%	----	----	35	----	----
Gravel (>2mm)	----	1	%	----	----	----	----	1
Cobbles (>6cm)	----	1	%	----	----	----	----	<1
Sand (0.06-2.00 mm)	----	1	%	----	----	27	----	----
Gravel (>2mm)	----	1	%	----	----	2	----	----
Cobbles (>6cm)	----	1	%	----	----	<1	----	----
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	----	----	----	----	<0.1
Exchangeable Magnesium	----	0.1	meq/100g	----	----	----	----	8.0
Exchangeable Potassium	----	0.1	meq/100g	----	----	----	----	0.2
Exchangeable Sodium	----	0.1	meq/100g	----	----	----	----	1.6
Cation Exchange Capacity	----	0.1	meq/100g	----	----	----	----	9.8
Exchangeable Aluminium	----	0.1	meq/100g	----	----	----	----	<0.1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	9	<5	5	<5	5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	15	51	12	7	11
Copper	7440-50-8	5	mg/kg	18	22	12	<5	8
Lead	7439-92-1	5	mg/kg	24	6	10	6	8
Nickel	7440-02-0	2	mg/kg	12	61	8	<2	2
Zinc	7440-66-6	5	mg/kg	60	49	52	13	27
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BF_SB06_0.5	BF_SB07_0.75	BF_SB07_1.5	BF_MW07_2.4	BF_MW05_3.0
				06-DEC-2013 15:00	06-DEC-2013 15:00	06-DEC-2013 15:00	06-DEC-2013 15:00	06-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327432-014	ES1327432-017	ES1327432-018	ES1327432-020	ES1327432-021
EP075(SIM)A: Phenolic Compounds - Continued								
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BF_SB06_0.5	BF_SB07_0.75	BF_SB07_1.5	BF_MW07_2.4	BF_MW05_3.0
				06-DEC-2013 15:00	06-DEC-2013 15:00	06-DEC-2013 15:00	06-DEC-2013 15:00	06-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327432-014	ES1327432-017	ES1327432-018	ES1327432-020	ES1327432-021
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued								
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	94.0	105	103	104	109
2-Chlorophenol-D4	93951-73-6	0.1	%	95.8	102	105	101	108
2,4,6-Tribromophenol	118-79-6	0.1	%	86.4	85.4	85.5	88.1	85.8
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	95.4	96.5	96.9	100	99.9
Anthracene-d10	1719-06-8	0.1	%	81.2	82.5	81.9	86.8	85.6
4-Terphenyl-d14	1718-51-0	0.1	%	76.6	77.3	76.8	81.2	80.2
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	104	104	96.9	101	94.2
Toluene-D8	2037-26-5	0.1	%	104	102	94.8	97.6	92.1
4-Bromofluorobenzene	460-00-4	0.1	%	112	110	101	106	98.5