



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: 3189045)									
ES1325886-007	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	16.7	17.4	4.4	0% - 50%
ES1325940-019	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	11.9	12.4	3.4	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 3190953)									
ES1325886-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	1	2	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	12	15	26.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	16	7	72.5	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	24	21	14.4	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	25	20	24.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	12	9	29.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	67	64	5.6	0% - 50%
ES1325985-003	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	2	2	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	32	36	11.7	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	29	31	6.1	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	13	52.7	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	23	24	6.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	37	37	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	59	65	9.4	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3190954)									
ES1325886-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.1	0.0	No Limit
ES1325985-003	Anonymous	EG035T: Mercury	7439-97-6	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



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: 3183219) - continued									
ES1325880-001	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: 3183219)									
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		



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)									
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
		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: 3187750)									
ES1325782-001	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
		ES1325783-002	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: 3187750) - continued									
ES1325783-002	Anonymous	EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3187750)									
ES1325782-001	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		
ES1325783-002	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: 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
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3187749)									
ES1325782-001	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
ES1325783-002	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: 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: 3187749)									
ES1325782-001	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
ES1325783-002	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: 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		



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: 3190953)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	103	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	98.4	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	96.8	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	105	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	90.9	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	100	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	93.1	81	133	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3190954)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	85.8	66	112	
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	
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	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	96.1	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	102	54	136	
		5	mg/kg	<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	



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: 3183219) - continued									
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	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	61.9	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	84.4	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	71.8	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	82.4	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	87.9	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	90.5	54	126	
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	



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: 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	----	----	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3187750)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	111	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	112	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	98.7	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	107	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	100	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	101	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	92.7	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	83.6	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	86.3	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	20.0	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3187750)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	112	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	105	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	107	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	105	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	98.8	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: 3187750) - continued									
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	101	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	103	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	87.6	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	113	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	105	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: 3187749)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	84.6	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	96.2	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	99.6	64	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3183218)									
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: 3187749)									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	86.3	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	100	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	118	63	131	
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	

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	SpikeRecovery(%)	Recovery Limits (%)
				Concentration	MS	Low High



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
EG005T: Total Metals by ICP-AES (QCLot: 3190953)							
ES1325886-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	86.3	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	89.8	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	98.5	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	94.3	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	91.5	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	77.6	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	71.1	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3190954)							
ES1325886-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	100	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: 3187750)							
ES1325782-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	106	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	101	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	112	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	46.0	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3187750)							
ES1325782-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	119	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	110	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: 3187749)							
ES1325782-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	77.4	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	81.3	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	73.3	52	132
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: 3187749)							
ES1325782-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	99.6	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	76.1	53	131



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	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3187749) - continued								
ES1325782-001	Anonymous	EP071: >C34 - C40 Fraction	----	2400 mg/kg	58.6	52	132	
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	

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: 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	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	----	----	
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: 3187749)											
ES1325782-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	77.4	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	81.3	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	73.3	----	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
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3187749)										
ES1325782-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	99.6	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	76.1	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	58.6	----	52	132	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3187750)										
ES1325782-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	106	----	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	101	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	112	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	46.0	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3187750)										
ES1325782-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	119	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	110	----	70	130	----	----
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3190624)										
ES1325880-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	82.0	----	70	130	----	----
EG005T: Total Metals by ICP-AES (QCLot: 3190953)										
ES1325886-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	86.3	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	89.8	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	98.5	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	94.3	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	91.5	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	77.6	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	71.1	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3190954)										
ES1325886-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	100	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1325888	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
Site	: LIDDELL	Date Samples Received	: 26-NOV-2013
C-O-C number	: ----	Issue Date	: 04-DEC-2013
Sampler	: JG	No. of samples received	: 4
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) LP_SB04_2.9-3.0, LN_MW06_2.9-3.0	LP_MW05_2.9-3.0, 19-NOV-2013	----	----	----	02-DEC-2013	03-DEC-2013	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) LP_SB04_2.9-3.0, LN_MW06_2.9-3.0	LP_MW05_2.9-3.0, 19-NOV-2013	03-DEC-2013	18-MAY-2014	✓	04-DEC-2013	18-MAY-2014	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) LP_SB04_2.9-3.0, LN_MW06_2.9-3.0	LP_MW05_2.9-3.0, 19-NOV-2013	03-DEC-2013	17-DEC-2013	✓	04-DEC-2013	17-DEC-2013	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) LN_MW06_2.9-3.0	19-NOV-2013	03-DEC-2013	03-DEC-2013	✓	03-DEC-2013	12-JAN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Soil Glass Jar - Unpreserved (EP071) LP_SB04_2.9-3.0, LN_MW06_2.9-3.0	LP_MW05_2.9-3.0, 19-NOV-2013	02-DEC-2013	03-DEC-2013	✓	03-DEC-2013	11-JAN-2014	✓
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074) LN_MW06_2.9-3.0	19-NOV-2013	29-NOV-2013	26-NOV-2013	*	01-DEC-2013	26-NOV-2013	*
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074) LN_MW06_2.9-3.0	19-NOV-2013	29-NOV-2013	26-NOV-2013	*	01-DEC-2013	26-NOV-2013	*
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074) LN_MW06_2.9-3.0	19-NOV-2013	29-NOV-2013	26-NOV-2013	*	01-DEC-2013	26-NOV-2013	*
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074) LN_MW06_2.9-3.0	19-NOV-2013	29-NOV-2013	26-NOV-2013	*	01-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
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074) LN_MW06_2.9-3.0	19-NOV-2013	29-NOV-2013	26-NOV-2013	✘	01-DEC-2013	26-NOV-2013	✘
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074) LN_MW06_2.9-3.0	19-NOV-2013	29-NOV-2013	26-NOV-2013	✘	01-DEC-2013	26-NOV-2013	✘
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved (EP074) LN_MW06_2.9-3.0	19-NOV-2013	29-NOV-2013	26-NOV-2013	✘	01-DEC-2013	26-NOV-2013	✘
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074) LN_MW06_2.9-3.0	19-NOV-2013	29-NOV-2013	26-NOV-2013	✘	01-DEC-2013	26-NOV-2013	✘
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) LP_SB04_2.9-3.0, LP_MW05_2.9-3.0, LN_MW06_2.9-3.0	19-NOV-2013	02-DEC-2013	03-DEC-2013	✔	03-DEC-2013	11-JAN-2014	✔
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) LP_SB04_2.9-3.0, LP_MW05_2.9-3.0, LN_MW06_2.9-3.0	19-NOV-2013	02-DEC-2013	03-DEC-2013	✔	03-DEC-2013	11-JAN-2014	✔
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) LP_SB04_2.9-3.0, LP_MW05_2.9-3.0, LN_MW06_2.9-3.0	19-NOV-2013	29-NOV-2013	03-DEC-2013	✔	01-DEC-2013	03-DEC-2013	✔
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) LP_SB04_2.9-3.0, LP_MW05_2.9-3.0, LN_MW06_2.9-3.0	19-NOV-2013	29-NOV-2013	03-DEC-2013	✔	01-DEC-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	19	10.5	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
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	19	10.5	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	19	10.5	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	7	14.3	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
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	19	5.3	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	19	5.3	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
Volatile Organic Compounds	EP074	1	7	14.3	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
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	19	5.3	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	19	5.3	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
Volatile Organic Compounds	EP074	1	7	14.3	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
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	19	5.3	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	19	5.3	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
Volatile Organic Compounds	EP074	1	7	14.3	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 - 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

- 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
EP074A: Monocyclic Aromatic Hydrocarbons						
Soil Glass Jar - Unpreserved LN_MW06_2.9-3.0	29-NOV-2013	26-NOV-2013	3	01-DEC-2013	26-NOV-2013	5
EP074B: Oxygenated Compounds						
Soil Glass Jar - Unpreserved LN_MW06_2.9-3.0	29-NOV-2013	26-NOV-2013	3	01-DEC-2013	26-NOV-2013	5
EP074C: Sulfonated Compounds						
Soil Glass Jar - Unpreserved LN_MW06_2.9-3.0	29-NOV-2013	26-NOV-2013	3	01-DEC-2013	26-NOV-2013	5
EP074D: Fumigants						
Soil Glass Jar - Unpreserved LN_MW06_2.9-3.0	29-NOV-2013	26-NOV-2013	3	01-DEC-2013	26-NOV-2013	5
EP074E: Halogenated Aliphatic Compounds						
Soil Glass Jar - Unpreserved LN_MW06_2.9-3.0	29-NOV-2013	26-NOV-2013	3	01-DEC-2013	26-NOV-2013	5
EP074F: Halogenated Aromatic Compounds						
Soil Glass Jar - Unpreserved LN_MW06_2.9-3.0	29-NOV-2013	26-NOV-2013	3	01-DEC-2013	26-NOV-2013	5
EP074G: Trihalomethanes						
Soil Glass Jar - Unpreserved LN_MW06_2.9-3.0	29-NOV-2013	26-NOV-2013	3	01-DEC-2013	26-NOV-2013	5



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
EP074H: Naphthalene						
Soil Glass Jar - Unpreserved LN_MW06_2.9-3.0	29-NOV-2013	26-NOV-2013	3	01-DEC-2013	26-NOV-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.**



CHAIN OF CUSTODY
ALS Laboratory
please fill in →

CLIENT: E2M
OFFICE:
PROJECT: 0224198
ORDER NUMBER:
PROJECT MANAGER:
SAMPLER:
CONTACT PH:
SAMPLER MOBILE:
EDD FORMAT (or 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):

TURNAROUND REQUIREMENTS:
 Standard TAT (List due date):
 Non Standard or urgent TAT (List due date):
 (Standard TAT may be longer for some tests e.g. Ultra Trace Disinfectants)
ALS QUOTE NO.:
RECEIVED BY: KAVINDS
DATE/TIME: 24/11/13 19:00
RELINQUISHED BY:
DATE/TIME:

FOR LABORATORY USE ONLY (Circle)

Alcohy/Sol Contact?	NO
Frozen/Intercooled/Refrigerated/Unpreserved	NO
Random Sample Temporarily Preserved	NO
Other Comments:	

ALS USE	SAMPLE DETAILS MATRIX, SOLID (S), WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	(refer to TOTAL CONTAINERS)	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).	Additional Information
√1	LA-MW02 - 1.0	22/11/13	S		Jar + Bag		
√2	LE-SB01 - 1.0		S		Jar + Bag		
√3	LO-SB02 - 0.1		S		Bag		

**Environmental Division
 Sydney
 Work Order
 ES1325889**

Telephone : +61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Gd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VD = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Jacob Waugh

From: Barbara Hanna
Sent: Friday, 29 November 2013 11:46 AM
To: Jacob Waugh
Subject: RE: UPDATED COC FOR ES1325889

That sounds right

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: Jacob Waugh
Sent: Friday, 29 November 2013 10:27 AM
To: Barbara Hanna
Subject: RE: UPDATED COC FOR ES1325889

Can you specify which samples? Samples 1 and 2 I assume will be for everything listed but sample 3 is only a bag so perhaps this is only for asbestos?

From: Barbara Hanna
Sent: Friday, 29 November 2013 10:24 AM
To: Jacob Waugh
Subject: FW: UPDATED COC FOR ES1325889

Hi Jacob,

This is the analysis for ES132889 which are currently on hold. Could you please arrange for someone to log this in ASAP.

Thanks!!

Kind Regards

Barbara Hanna

Client Services Manager
ALS | Environmental Division

277-289 Woodpark Road
Smithfield NSW 2164 Australia

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EnviroMail 69 - Testing Requirements of the new NEPM - July 2013

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Please consider the environment before printing this email.

From: Joshua Kowald [<mailto:Joshua.Kowald@erm.com>]
Sent: Friday, 29 November 2013 10:22 AM
To: Barbara Hanna
Cc: Joseph Ferring; Josh Girvin
Subject: RE: UPDATED COC FOR ES1325889

Please test for BTEX, TRH (C6 – C40), PAH, Phenols, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg), Asbestos (presence/non presence).

From: Joseph Ferring
Sent: Friday, November 29, 2013 6:12 AM
To: Joshua Kowald; Josh Girvin
Subject: FW: UPDATED COC FOR ES1325889
Importance: High

Josh and Josh – can you look into these today please?

Joe Ferring
Senior Environmental Scientist

ERM
Building C, 33 Saunders Street Pymont 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: Barbara Hanna [<mailto:Barbara.Hanna@alsglobal.com>]
Sent: Thursday, November 28, 2013 5:30 PM
To: Joseph Ferring
Subject: UPDATED COC FOR ES1325889
Importance: High

Hi Joe,

We received the attached samples on hold from ERM with no contact details. Could you please ask around and confirm whether these samples require analysis.

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: Wael Saleh
Sent: Thursday, 28 November 2013 3:38 PM
To: Barbara Hanna
Subject: UPDATED COC FOR ES1325889
Importance: High

Hi Barb,

Can you please obtain an updated COC?

Thanks

Wael Saleh

Creation and Committal Coordinator
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](#)

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

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

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Please visit ERM's web site: <http://www.erm.com>

ALS Group: Click [here](#) to report this email as spam.

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1325889	
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 : ---- Sampler : T.A	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 : 26-NOV-2013 Client Requested Due Date : 06-DEC-2013	Issue Date : 29-NOV-2013 14:32 Scheduled Reporting Date : 06-DEC-2013
----------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------

Delivery Details

Mode of Delivery : Carrier No. of coolers/boxes : 7 HARD Security Seal : Intact.	Temperature : 5.3°C - Ice present No. of samples received : 3 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.**
- **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	SOIL - S-27 TRH/BTEX/NP/PAH/Phenols/8Metals
ES1325889-001	22-NOV-2013 15:00	LA_MW02_1.0	✓	✓
ES1325889-002	22-NOV-2013 15:00	LE_SB01_1.0	✓	✓
ES1325889-003	22-NOV-2013 15:00	LO_SB02_0.1	✓	

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
- A4 - AU Tax Invoice (INV)	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
- A4 - AU Tax Invoice (INV)	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 : ES1325889 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 : T.A 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 : 26-NOV-2013 Issue Date : 10-DEC-2013 No. of samples received : 3 No. of samples analysed : 3
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

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



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
Peter Rennie	Asbestos Identifier	Newcastle - Asbestos
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

- **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.**



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LA_MW02_1.0	LE_SB01_1.0	LO_SB02_0.1	----	----
				22-NOV-2013 15:00	22-NOV-2013 15:00	22-NOV-2013 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1325889-001	ES1325889-002	ES1325889-003	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	16.5	18.4	----	----	----
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	503	398	641	----	----
APPROVED IDENTIFIER:	----	-	--	P.RENNIE	P.RENNIE	P.RENNIE	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	8	9	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	17	14	----	----	----
Copper	7440-50-8	5	mg/kg	6	<5	----	----	----
Lead	7439-92-1	5	mg/kg	11	11	----	----	----
Nickel	7440-02-0	2	mg/kg	5	5	----	----	----
Zinc	7440-66-6	5	mg/kg	11	9	----	----	----
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	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LA_MW02_1.0	LE_SB01_1.0	LO_SB02_0.1	---	---
				22-NOV-2013 15:00	22-NOV-2013 15:00	22-NOV-2013 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1325889-001	ES1325889-002	ES1325889-003	---	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	---	50	mg/kg	<50	<50	---	---	---
EP080: BTEXN								



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				LA_MW02_1.0	LE_SB01_1.0	LO_SB02_0.1	---	---
				22-NOV-2013 15:00	22-NOV-2013 15:00	22-NOV-2013 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1325889-001	ES1325889-002	ES1325889-003	---	---
EP080: BTEXN - Continued								
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	---	---	---
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	86.9	102	---	---	---
2-Chlorophenol-D4	93951-73-6	0.1	%	70.1	97.3	---	---	---
2,4,6-Tribromophenol	118-79-6	0.1	%	82.6	80.7	---	---	---
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	83.7	94.4	---	---	---
Anthracene-d10	1719-06-8	0.1	%	84.3	85.2	---	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	73.6	74.3	---	---	---
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	94.0	92.1	---	---	---
Toluene-D8	2037-26-5	0.1	%	104	102	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	99.2	96.2	---	---	---

Analytical Results

Descriptive Results

Sub-Matrix: SOIL

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples		
EA200: Description	LA_MW02_1.0 - 22-NOV-2013 15:00	Mid brown clay soil with small dark brown rocks and coal pieces
EA200: Description	LE_SB01_1.0 - 22-NOV-2013 15:00	Mid brown clay soil with small dark brown rocks and coal pieces
EA200: Description	LO_SB02_0.1 - 22-NOV-2013 15:00	Light orange-brown clay soil with some vegetation and several large orange-brown rocks



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	: ES1325889	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	: 26-NOV-2013
C-O-C number	: ----	Issue Date	: 10-DEC-2013
Sampler	: T.A	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



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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
Peter Rennie
Phalak Inthaksone

Position

Senior Spectroscopist
Asbestos Identifier
Laboratory Manager - Organics

Accreditation Category

Sydney Inorganics
Newcastle - Asbestos
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: 3190923)									
ES1325847-004	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	20.1	19.0	5.8	0% - 20%
ES1325900-003	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	10.9	12.4	12.5	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 3192312)									
ES1325741-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	11	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	4	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	9	8	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	12	10	11.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	47	44	6.5	No Limit
ES1325840-004	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	3	4	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	<5	<5	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	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 3192314)									
ES1325889-002	LE_SB01_1.0	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	14	15	8.6	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	9	11	19.4	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	12	9.5	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	9	9	0.0	No Limit
ES1325901-007	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	5	4	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	27	24	10.2	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	272	231	16.1	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	81	60	29.7	0% - 50%
		EG005T: Copper	7440-50-8	5	mg/kg	1770	1660	6.6	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	27	26	6.8	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	1010	959	5.2	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3192313)									
ES1325741-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1325840-004	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 (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3189089)									
EW1303350-001	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		
ES1325838-003	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: 3189089)									
EW1303350-001	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



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: 3189089) - continued									
EW1303350-001	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	<0.5	<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
ES1325838-003	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: 3187742)									
ES1325899-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1325900-010	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3189088)									
EW1303350-001	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
ES1325838-003	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 Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3187742)									
ES1325899-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1325900-010	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: 3189088)									
EW1303350-001	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



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: 3189088) - continued									
ES1325838-003	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: BTEXN (QC Lot: 3187742)									
ES1325899-001	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
ES1325900-010	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: 3192312)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	105	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	99.6	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	96.2	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	101	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	94.2	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	103	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	94.1	81	133	
EG005T: Total Metals by ICP-AES (QCLot: 3192314)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	113	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	106	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	102	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	108	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	102	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	110	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: 3192313)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	72.9	66	112	
EP075(SIM)A: Phenolic Compounds (QCLot: 3189089)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	92.1	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	95.3	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	103	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	104	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	82.4	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	87.8	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	95.5	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	98.3	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	94.0	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	89.8	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	90.6	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	26.3	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3189089)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	93.3	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	105	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	99.6	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: 3189089) - continued									
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	107	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	102	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	107	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	108	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	98.9	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	102	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	96.9	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	97.3	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	100	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	99.8	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	98.4	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3187742)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	93.7	68.4	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3189088)									
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	93.6	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: 3187742)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	94.5	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3189088)									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	101	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	90.8	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	74.5	63	131	
EP080: BTEXN (QCLot: 3187742)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	69.2	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	89.5	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	90.4	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	93.1	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	93.3	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	104	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			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 3192312)							
ES1325741-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	96.7	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	96.5	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	100	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	106	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	98.0	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	98.7	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	92.8	70	130
EG005T: Total Metals by ICP-AES (QCLot: 3192314)							
ES1325889-002	LE_SB01_1.0	EG005T: Arsenic	7440-38-2	50 mg/kg	102	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	102	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	104	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	107	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	103	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	103	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	100	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3192313)							
ES1325741-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	81.2	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3189089)							
EW1303350-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	82.4	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	86.3	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	83.4	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	51.6	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3189089)							
EW1303350-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	91.3	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	95.5	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3187742)							
ES1325899-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	108	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3189088)							
EW1303350-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	89.4	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	89.9	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	74.9	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3187742)							
ES1325899-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	110	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3189088)							
EW1303350-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	114	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	80.9	53	131



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	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3189088) - continued								
EW1303350-001	Anonymous	EP071: >C34 - C40 Fraction	----	2400 mg/kg	61.0	52	132	
EP080: BTEXN (QCLot: 3187742)								
ES1325899-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	71.4	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	92.0	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	92.6	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	93.0	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	95.6	70	130	
	EP080: Naphthalene	91-20-3		2.5 mg/kg	97.1	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: 3187742)											
ES1325899-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	108	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3187742)											
ES1325899-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	110	----	70	130	----	----	
EP080: BTEXN (QCLot: 3187742)											
ES1325899-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	71.4	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	92.0	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	92.6	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	93.0	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	95.6	----	70	130	----	----	
	EP080: Naphthalene	91-20-3		2.5 mg/kg	97.1	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3189088)											
EW1303350-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	89.4	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	89.9	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	74.9	----	52	132	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3189088)											
EW1303350-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	114	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	80.9	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	61.0	----	52	132	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3189089)											



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: 3189089) - continued										
EW1303350-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	82.4	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	86.3	----	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	83.4	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	51.6	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3189089)										
EW1303350-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	91.3	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	95.5	----	70	130	----	----
EG005T: Total Metals by ICP-AES (QCLot: 3192312)										
ES1325741-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	96.7	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	96.5	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	100	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	106	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	98.0	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	98.7	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	92.8	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3192313)										
ES1325741-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	81.2	----	70	130	----	----
EG005T: Total Metals by ICP-AES (QCLot: 3192314)										
ES1325889-002	LE_SB01_1.0	EG005T: Arsenic	7440-38-2	50 mg/kg	102	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	102	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	104	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	107	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	103	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	103	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	100	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1325889	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	: 26-NOV-2013
C-O-C number	: ----	Issue Date	: 10-DEC-2013
Sampler	: T.A	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) LA_MW02_1.0, LE_SB01_1.0	22-NOV-2013	----	----	----	03-DEC-2013	06-DEC-2013	✓	
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Snap Lock Bag (EA200) LA_MW02_1.0, LO_SB02_0.1, LE_SB01_1.0,	22-NOV-2013	---	21-MAY-2014	----	10-DEC-2013	08-JUN-2014	✓	
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T) LA_MW02_1.0, LE_SB01_1.0	22-NOV-2013	04-DEC-2013	21-MAY-2014	✓	04-DEC-2013	21-MAY-2014	✓	
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T) LA_MW02_1.0, LE_SB01_1.0	22-NOV-2013	04-DEC-2013	20-DEC-2013	✓	05-DEC-2013	20-DEC-2013	✓	
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP071) LA_MW02_1.0, LE_SB01_1.0	22-NOV-2013	04-DEC-2013	06-DEC-2013	✓	04-DEC-2013	13-JAN-2014	✓	
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM)) LA_MW02_1.0, LE_SB01_1.0	22-NOV-2013	04-DEC-2013	06-DEC-2013	✓	04-DEC-2013	13-JAN-2014	✓	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) LA_MW02_1.0, LE_SB01_1.0	22-NOV-2013	04-DEC-2013	06-DEC-2013	✓	04-DEC-2013	13-JAN-2014	✓	
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) LA_MW02_1.0, LE_SB01_1.0	22-NOV-2013	03-DEC-2013	06-DEC-2013	✓	03-DEC-2013	06-DEC-2013	✓	
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080) LA_MW02_1.0, LE_SB01_1.0	22-NOV-2013	03-DEC-2013	06-DEC-2013	✓	03-DEC-2013	06-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	16	12.5	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	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	38	10.5	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	2	20	10.0	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	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	38	5.3	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	20	5.0	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	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	38	5.3	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	20	5.0	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	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	38	5.3	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	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
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
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.
-



CHAIN OF CUSTODY

ALS Laboratory

ALS Laboratory
1000 West 10th Street
Edmonton, Alberta T6A 1K1
Canada
Tel: 781-222-2222
Fax: 781-222-2222

ALS Laboratory
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Edmonton, Alberta T6A 1K1
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Tel: 781-222-2222
Fax: 781-222-2222

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Fax: 781-222-2222

ALS Laboratory
1000 West 10th Street
Edmonton, Alberta T6A 1K1
Canada
Tel: 781-222-2222
Fax: 781-222-2222

CLIENT: **ERM MacGeal**

OFFICE: **Pyramont**

PROJECT: Project Symphony

ORDER NUMBER: **0224198**

PROJECT MANAGER: **Stee Ferrin**

SAMPLER: **JGH Garvin**

COC emailed to ALS? (Yes / No)

Email Reports to (will default to PM if no other addresses are listed): **Sydney@erm.com**

Email Invoice to (will default to PM if no other addresses are listed): **Sydney@erm.com**

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TURNAROUND REQUIREMENTS: Standard (AT Last due date)

Non Standard or urgent (AT Last due date)

ALS QUOTE NO.: **SY79473**

SITE: **BAYSWATER (TIDEL)**

CONTACT PH: **781-222-2222**

SAMPLER MOBILE: **781-222-2222**

END FORMAT (or default): **781-222-2222**

RELINQUISHED BY: **Stee Ferrin**

DATE/TIME: **2/12/13**

RECEIVED BY: **Stee Ferrin**

DATE/TIME: **2/12/13**

COC SEQUENCE NUMBER (check)

1 2 3 4 5 6 7

RECEIVED BY: **Stee Ferrin**

DATE/TIME: **2/12/13**

RECEIVED BY: **Stee Ferrin**

DATE/TIME: **2/12/13**

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DATE/TIME: **2/12/13**

RECEIVED BY: **Stee Ferrin**

DATE/TIME: **2/12/13**

RECEIVED BY: **Stee Ferrin**

ALS USE	SAMPLE DETAILS		CONTAINER INFORMATION		ANALYSIS REQUIRED (including SUITES (Nil, Suite Codes must be listed to allow suite error) When Metals are required, specify Total (undiluted bottle required) or Dissolved (field filtered bottle required))										Additional Information	
	MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below)	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) BTEXN, PAH, Phenols	VOC Target Scan	PCB	pH (1:5)	Exchangeable cations (E0007)	PFOS/PFOA	Asbestos (absence/presence)		Particle Sizing to 75µm (Sieve)
1	LL MW09_3-9-4.0	27/11/13	soil	1 Jar	1	X	X	X	X	X	X	X	X	X	X	
2	LL SB13_1.8-1.9				1	X	X	X	X	X	X	X	X	X	X	
3	LL SB18_2.9-3.0				1	X	X	X	X	X	X	X	X	X	X	
4	LL SB19_2.9-3.0				1	X	X	X	X	X	X	X	X	X	X	
5	LL MW08_2.9-3.0	28/11/13		1 Jar	1	X	X	X	X	X	X	X	X	X	X	
6	LL MW07_1.9-2.0				1	X	X	X	X	X	X	X	X	X	X	
7	LL MW05_1.8-1.9				1	X	X	X	X	X	X	X	X	X	X	
8	LL MW07_2.8-3.0				1	X	X	X	X	X	X	X	X	X	X	
9	Del_28/11/13_56				1	X	X	X	X	X	X	X	X	X	X	
10	LL MW01-2.9-3.0				1	X	X	X	X	X	X	X	X	X	X	

Environmental Division
Sydney
Work Order
ES1326152

Telephone: + 61-2-8784 8555



Water Container Codes: P = Unpreserved Plastic; N = Nitro Preserved Plastic; GFC = Sodium Hydroxide Preserved Plastic; S = Sodium Hydroxide Preserved Plastic; H = HCl Preserved Plastic; VA = Volatil Preserved Plastic; V = VOA Volatil Preserved Plastic; VA = Volatil Preserved Plastic; AV = Aqueous Unpreserved Vial; SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Plastic; E = EDTA Preserved Plastic; ST = Sterile Bottle; ASS = Plastic bag for Acid Sulfate Solids; B = Unpreserved Bag.

Subcom / Forward Lab / Split WO **23/11/13**
Lab / Analysis: **TOH-28113-56**
Reinforced by / Date: **ES1326152**
Comnote / Courier: **ES1326152**
WO No: **ES1326152**
Attach by PO / Internal Sheet:

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1326152	
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 Project : PROJECT SYMPHONY-0224198 Order number : 0224198 C-O-C number : ---- Site : ---- Sampler : JG
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 Page : 1 of 2 Quote number : ES2013ENVRES0354 (EN/009/13) QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 02-DEC-2013 Client Requested Due Date : 09-DEC-2013	Issue Date : 04-DEC-2013 10:14 Scheduled Reporting Date : 09-DEC-2013
----------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------

Delivery Details

Mode of Delivery : Carrier No. of coolers/boxes : 1 HARD Security Seal : Intact.	Temperature : 4.8°C SYD - Ice present No. of samples received : 10 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.
- Sample T01_281113_JG to be forwarded to Envirolab.
- **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 - EP066 (solids)	SOIL - S-27
ES1326152-001	27-NOV-2013 15:00	LL_MW09_4.0	✓	✓
ES1326152-002	27-NOV-2013 15:00	LL_SB13_1.9	✓	✓
ES1326152-003	27-NOV-2013 15:00	LL_SB18_3.0	✓	✓
ES1326152-004	27-NOV-2013 15:00	LL_SB19_3.0	✓	✓
ES1326152-005	28-NOV-2013 15:00	LL_MW08_3.0	✓	✓
ES1326152-006	28-NOV-2013 15:00	LL_MW02_2.0	✓	✓
ES1326152-007	28-NOV-2013 15:00	LL_MW03_1.9	✓	✓
ES1326152-008	28-NOV-2013 15:00	LL_MW07_3.0	✓	✓
ES1326152-009	28-NOV-2013 15:00	D01_281113_JG	✓	✓
ES1326152-010	28-NOV-2013 15:00	LL_MW01_3.0	✓	✓

Polychlorinated Biphenyls by GCMS
 TRH/BTEXN/PAH/Phenols&Metals

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	Email	symphony.macgen@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep)	Email	symphony.macgen@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA	Email	symphony.macgen@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT	Email	symphony.macgen@erm.com
- Chain of Custody (CoC)	Email	symphony.macgen@erm.com
- EDI Format - ENMRG	Email	symphony.macgen@erm.com
- EDI Format - EQUIS V5 ERM	Email	symphony.macgen@erm.com
- EDI Format - ESDAT	Email	symphony.macgen@erm.com
- EDI Format - 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 : ES1326152 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-0224198 Order number : 0224198 C-O-C number : ---- Sampler : JG Site : ---- Quote number : EN/009/13	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 : 02-DEC-2013 Issue Date : 09-DEC-2013 No. of samples received : 10 No. of samples analysed : 10
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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>
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Raymond Commodor	Instrument Chemist	Sydney 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

				LL_MW09_4.0	LL_SB13_1.9	LL_SB18_3.0	LL_SB19_3.0	LL_MW08_3.0
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	28-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326152-001	ES1326152-002	ES1326152-003	ES1326152-004	ES1326152-005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	11.2	15.4	17.8	14.3	13.6
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	6	<5	40	<5	11
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	19	12	40	10	25
Copper	7440-50-8	5	mg/kg	25	<5	20	<5	26
Lead	7439-92-1	5	mg/kg	14	5	28	30	22
Nickel	7440-02-0	2	mg/kg	29	5	15	2	69
Zinc	7440-66-6	5	mg/kg	117	56	100	50	233
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
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	1.0	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	0.6	<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	1.8	1.3	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	0.9	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LL_MW09_4.0	LL_SB13_1.9	LL_SB18_3.0	LL_SB19_3.0	LL_MW08_3.0
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	28-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326152-001	ES1326152-002	ES1326152-003	ES1326152-004	ES1326152-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Fluoranthene	206-44-0	0.5	mg/kg	3.6	2.0	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	3.8	2.1	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	1.9	1.0	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	1.8	1.1	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	1.9	1.1	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	0.8	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	1.5	0.7	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	0.8	<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	0.8	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	20.2	10.3	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	2.1	0.9	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	2.3	1.2	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	2.6	1.5	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	70	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	260	770	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	190	430	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	450	1270	<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	90	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	370	1020	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	150	300	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	520	1410	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	90	<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



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LL_MW09_4.0	LL_SB13_1.9	LL_SB18_3.0	LL_SB19_3.0	LL_MW08_3.0
				27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	27-NOV-2013 15:00	28-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326152-001	ES1326152-002	ES1326152-003	ES1326152-004	ES1326152-005
EP080: BTEXN - Continued								
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	%	61.1	62.5	67.8	60.1	63.0
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	112	113	104	112	91.6
2-Chlorophenol-D4	93951-73-6	0.1	%	115	112	99.9	110	99.6
2,4,6-Tribromophenol	118-79-6	0.1	%	103	101	92.3	92.2	64.3
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	107	104	94.1	100	105
Anthracene-d10	1719-06-8	0.1	%	94.5	87.7	88.2	89.9	86.4
4-Terphenyl-d14	1718-51-0	0.1	%	84.2	80.7	78.3	80.8	120
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	110	115	110	99.5
Toluene-D8	2037-26-5	0.1	%	96.8	107	97.0	102	98.2
4-Bromofluorobenzene	460-00-4	0.1	%	90.1	102	95.1	97.8	95.4



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LL_MW02_2.0	LL_MW03_1.9	LL_MW07_3.0	D01_281113_JG	LL_MW01_3.0
				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	ES1326152-006	ES1326152-007	ES1326152-008	ES1326152-009	ES1326152-010
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	15.1	17.2	14.6	13.8	19.1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	8	<5	20	21	11
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	10	12	17	20	33
Copper	7440-50-8	5	mg/kg	<5	<5	13	16	20
Lead	7439-92-1	5	mg/kg	<5	12	7	11	16
Nickel	7440-02-0	2	mg/kg	3	3	7	9	24
Zinc	7440-66-6	5	mg/kg	57	49	72	77	69
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
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



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LL_MW02_2.0	LL_MW03_1.9	LL_MW07_3.0	D01_281113_JG	LL_MW01_3.0
				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	ES1326152-006	ES1326152-007	ES1326152-008	ES1326152-009	ES1326152-010
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	14.8	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	7.6	<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	7.6	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	30.0	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	15.6	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	16.0	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	16.3	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



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LL_MW02_2.0	LL_MW03_1.9	LL_MW07_3.0	D01_281113_JG	LL_MW01_3.0
				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	ES1326152-006	ES1326152-007	ES1326152-008	ES1326152-009	ES1326152-010
EP080: BTEXN - Continued								
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	%	65.0	63.6	61.1	60.2	61.5
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	77.0	76.8	90.1	82.8	78.2
2-Chlorophenol-D4	93951-73-6	0.1	%	94.1	87.0	101	103	85.0
2,4,6-Tribromophenol	118-79-6	0.1	%	72.1	76.9	70.4	63.2	69.0
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	102	98.2	109	109	102
Anthracene-d10	1719-06-8	0.1	%	76.5	71.3	75.8	68.8	59.1
4-Terphenyl-d14	1718-51-0	0.1	%	107	116	108	112	112
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	115	111	90.5	108	126
Toluene-D8	2037-26-5	0.1	%	106	95.4	92.1	107	112
4-Bromofluorobenzene	460-00-4	0.1	%	105	92.2	88.2	104	111



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
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	: ES1326152	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-0224198	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 02-DEC-2013
C-O-C number	: ----	Issue Date	: 09-DEC-2013
Sampler	: JG	No. of samples received	: 10
Order number	: 0224198	No. of samples analysed	: 10
Quote number	: EN/009/13		

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>
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Raymond Commodor	Instrument Chemist	Sydney 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 (%)
EA055: Moisture Content (QC Lot: 3195166)									
ES1326083-023	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	45.3	41.7	8.2	0% - 20%
ES1326152-004	LL_SB19_3.0	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	14.3	14.0	2.2	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 3193801)									
ES1326079-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	15	13	13.7	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
		EG005T: Zinc	7440-66-6	5	mg/kg	40	15	92.3	No Limit
ES1326079-011	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	18	17	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: Zinc	7440-66-6	5	mg/kg	75	88	16.0	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 3193803)									
ES1326152-002	LL_SB13_1.9	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	12	13	8.6	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	5	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	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	5	6	20.5	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	56	57	2.4	0% - 50%
ES1326183-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	14	16	13.6	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	3	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	5	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	12	15	23.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	10	10	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	48	13	115	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3193802)									
ES1326079-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326079-011	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: 3193804)									
ES1326152-002	LL_SB13_1.9	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326183-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3192661)									
ES1326152-001	LL_MW09_4.0	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3192768)									
ES1326152-001	LL_MW09_4.0	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
		ES1326083-023	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: 3192768)									
ES1326152-001	LL_MW09_4.0	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	0.6	0.6	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	1.8	1.6	12.5	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	0.9	0.8	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	3.6	3.3	8.1	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	3.8	3.5	8.2	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	1.9	1.9	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	1.8	1.7	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: 3192768) - continued											
ES1326152-001	LL_MW09_4.0	EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	1.9	1.8	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	1.5	1.4	7.6	No Limit		
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	0.8	0.7	13.1	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	0.8	0.7	13.1	No Limit		
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	20.2	18.8	7.2	0% - 20%		
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	2.1	1.9	6.1	No Limit		
ES1326083-023	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: 3192514)									
		ES1326108-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1326152-002	LL_SB13_1.9	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit		
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3192769)											
ES1326152-001	LL_MW09_4.0	EP071: C15 - C28 Fraction	----	100	mg/kg	260	290	9.3	No Limit		
		EP071: C29 - C36 Fraction	----	100	mg/kg	190	200	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: 3192514)											
ES1326108-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit		
ES1326152-002	LL_SB13_1.9	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit		
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3192769)											
ES1326152-001	LL_MW09_4.0	EP071: >C16 - C34 Fraction	----	100	mg/kg	370	390	5.1	No Limit		

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 Work Order : ES1326152
 Client : ENVIRO RESOURCES MANAGEMENT
 Project : PROJECT SYMPHONY-0224198



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: 3192769) - continued									
ES1326152-001	LL_MW09_4.0	EP071: >C34 - C40 Fraction	----	100	mg/kg	150	160	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 3192514)									
ES1326108-001	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
ES1326152-002	LL_SB13_1.9	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	108-38-3 106-42-3	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: 3193801)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	109	87	129	
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: 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: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	110	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	114	81	133	
EG005T: Total Metals by ICP-AES (QCLot: 3193803)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	113	87	129	
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	125	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	112	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	109	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	116	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: 3193802)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	73.3	66	112	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3193804)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	75.1	66	112	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3192661)									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	113	57.4	117	
EP075(SIM)A: Phenolic Compounds (QCLot: 3192768)									
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	110	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	105	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	108	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	# 112	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	107	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	109	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	82.6	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	81.2	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	17.2	3.9	57	



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: 3192768)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	115	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	99.0	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	101	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	99.9	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	105	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	102	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	106	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	100	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	107	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	97.6	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	114	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	102	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	# 115	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	102	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3192514)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	122	68.4	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3192769)									
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	105	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	90.3	64	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3192514)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	120	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3192769)									
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	100	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	74.0	63	131	
EP080: BTEXN (QCLot: 3192514)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	94.0	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	96.3	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	93.8	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	101	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	98.6	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	95.3	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: 3193801)							
ES1326079-001	Anonymous	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: Zinc	7440-66-6	125 mg/kg	111	70	130
EG005T: Total Metals by ICP-AES (QCLot: 3193803)							
ES1326152-002	LL_SB13_1.9	EG005T: Arsenic	7440-38-2	50 mg/kg	103	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
		EG005T: Lead	7439-92-1	125 mg/kg	105	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	106	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	112	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3193802)							
ES1326079-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	83.3	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3193804)							
ES1326152-002	LL_SB13_1.9	EG035T: Mercury	7439-97-6	5 mg/kg	83.5	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3192661)							
ES1326152-001	LL_MW09_4.0	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	87.0	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3192768)							
ES1326152-001	LL_MW09_4.0	EP075(SIM): Phenol	108-95-2	10 mg/kg	108	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	107	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	112	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	99.2	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	51.4	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3192768)							
ES1326152-001	LL_MW09_4.0	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	106	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	112	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3192514)							
ES1326108-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	129	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	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3192769)								
ES1326152-001	LL_MW09_4.0	EP071: C10 - C14 Fraction	----	640 mg/kg	76.0	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	77.2	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	70.3	52	132	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3192514)								
ES1326108-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	127	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3192769)								
ES1326152-001	LL_MW09_4.0	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	95.9	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	72.4	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	53.9	52	132	
EP080: BTEXN (QCLot: 3192514)								
ES1326108-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	91.5	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	93.5	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	93.2	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	97.5	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	98.2	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	94.1	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: 3192514)											
ES1326108-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	129	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3192514)											
ES1326108-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	127	----	70	130	----	----	
EP080: BTEXN (QCLot: 3192514)											
ES1326108-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	91.5	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	93.5	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	93.2	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	97.5	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	98.2	----	70	130	----	----	
EP080: Naphthalene	91-20-3	2.5 mg/kg	94.1	----	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
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3192661)										
ES1326152-001	LL_MW09_4.0	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	87.0	----	70	130	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3192768)										
ES1326152-001	LL_MW09_4.0	EP075(SIM): Phenol	108-95-2	10 mg/kg	108	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	107	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	112	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	99.2	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	51.4	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3192768)										
ES1326152-001	LL_MW09_4.0	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	106	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	112	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3192769)										
ES1326152-001	LL_MW09_4.0	EP071: C10 - C14 Fraction	----	640 mg/kg	76.0	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	77.2	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	70.3	----	52	132	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3192769)										
ES1326152-001	LL_MW09_4.0	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	95.9	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	72.4	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	53.9	----	52	132	----	----
EG005T: Total Metals by ICP-AES (QCLot: 3193801)										
ES1326079-001	Anonymous	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: Zinc	7440-66-6	125 mg/kg	111	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3193802)										
ES1326079-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	83.3	----	70	130	----	----
EG005T: Total Metals by ICP-AES (QCLot: 3193803)										
ES1326152-002	LL_SB13_1.9	EG005T: Arsenic	7440-38-2	50 mg/kg	103	----	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	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	105	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	106	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	112	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3193804)										
ES1326152-002	LL_SB13_1.9	EG035T: Mercury	7439-97-6	5 mg/kg	83.5	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326152	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-0224198	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 02-DEC-2013
C-O-C number	: ----	Issue Date	: 09-DEC-2013
Sampler	: JG	No. of samples received	: 10
Order number	: 0224198	No. of samples analysed	: 10
Quote number	: EN/009/13		

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) LL_MW09_4.0, LL_SB18_3.0, LL_SB13_1.9, LL_SB19_3.0	27-NOV-2013	----	----	----	05-DEC-2013	11-DEC-2013	✓
Soil Glass Jar - Unpreserved (EA055-103) LL_MW08_3.0, LL_MW03_1.9, D01_281113_JG, LL_MW02_2.0, LL_MW07_3.0, LL_MW01_3.0	28-NOV-2013	----	----	----	05-DEC-2013	12-DEC-2013	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) LL_MW09_4.0, LL_SB18_3.0, LL_SB13_1.9, LL_SB19_3.0	27-NOV-2013	04-DEC-2013	26-MAY-2014	✓	05-DEC-2013	26-MAY-2014	✓
Soil Glass Jar - Unpreserved (EG005T) LL_MW08_3.0, LL_MW03_1.9, D01_281113_JG, LL_MW02_2.0, LL_MW07_3.0, LL_MW01_3.0	28-NOV-2013	04-DEC-2013	27-MAY-2014	✓	05-DEC-2013	27-MAY-2014	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) LL_MW09_4.0, LL_SB18_3.0, LL_SB13_1.9, LL_SB19_3.0	27-NOV-2013	04-DEC-2013	25-DEC-2013	✓	06-DEC-2013	25-DEC-2013	✓
Soil Glass Jar - Unpreserved (EG035T) LL_MW08_3.0, LL_MW03_1.9, D01_281113_JG, LL_MW02_2.0, LL_MW07_3.0, LL_MW01_3.0	28-NOV-2013	04-DEC-2013	26-DEC-2013	✓	06-DEC-2013	26-DEC-2013	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) LL_MW09_4.0, LL_SB18_3.0, LL_SB13_1.9, LL_SB19_3.0	27-NOV-2013	06-DEC-2013	11-DEC-2013	✓	06-DEC-2013	15-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP066) LL_MW08_3.0, LL_MW03_1.9, D01_281113_JG, LL_MW02_2.0, LL_MW07_3.0, LL_MW01_3.0	28-NOV-2013	06-DEC-2013	12-DEC-2013	✓	06-DEC-2013	15-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) LL_MW09_4.0, LL_SB18_3.0, LL_SB13_1.9, LL_SB19_3.0	27-NOV-2013	06-DEC-2013	11-DEC-2013	✓	06-DEC-2013	15-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP071) LL_MW08_3.0, LL_MW03_1.9, D01_281113_JG, LL_MW02_2.0, LL_MW07_3.0, LL_MW01_3.0	28-NOV-2013	06-DEC-2013	12-DEC-2013	✓	06-DEC-2013	15-JAN-2014	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) LL_MW09_4.0, LL_SB18_3.0, LL_SB13_1.9, LL_SB19_3.0	27-NOV-2013	06-DEC-2013	11-DEC-2013	✓	06-DEC-2013	15-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) LL_MW08_3.0, LL_MW03_1.9, D01_281113_JG, LL_MW02_2.0, LL_MW07_3.0, LL_MW01_3.0	28-NOV-2013	06-DEC-2013	12-DEC-2013	✓	06-DEC-2013	15-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) LL_MW09_4.0, LL_SB18_3.0, LL_SB13_1.9, LL_SB19_3.0	27-NOV-2013	06-DEC-2013	11-DEC-2013	✓	06-DEC-2013	15-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) LL_MW08_3.0, LL_MW03_1.9, D01_281113_JG, LL_MW02_2.0, LL_MW07_3.0, LL_MW01_3.0	28-NOV-2013	06-DEC-2013	12-DEC-2013	✓	06-DEC-2013	15-JAN-2014	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) LL_MW09_4.0, LL_SB18_3.0, LL_SB13_1.9, LL_SB19_3.0	27-NOV-2013	04-DEC-2013	11-DEC-2013	✓	04-DEC-2013	11-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) LL_MW08_3.0, LL_MW03_1.9, D01_281113_JG, LL_MW02_2.0, LL_MW07_3.0, LL_MW01_3.0	28-NOV-2013	04-DEC-2013	12-DEC-2013	✓	04-DEC-2013	12-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Soil Glass Jar - Unpreserved (EP080) LL_MW09_4.0, LL_SB18_3.0, LL_SB13_1.9, LL_SB19_3.0	27-NOV-2013	04-DEC-2013	11-DEC-2013	✓	04-DEC-2013	11-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) LL_MW08_3.0, LL_MW03_1.9, D01_281113_JG, LL_MW02_2.0, LL_MW07_3.0, LL_MW01_3.0	28-NOV-2013	04-DEC-2013	12-DEC-2013	✓	04-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)							
Moisture Content	EA055-103	2	18	11.1	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
Polychlorinated Biphenyls (PCB)	EP066	1	10	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	4	36	11.1	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	10	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)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	10	10.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	36	5.6	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	10	10.0	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 (SIM)	EP075(SIM)	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	10	10.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	36	5.6	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	10	10.0	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	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	10	10.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	36	5.6	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	10	10.0	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
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)
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
Laboratory Control Spike (LCS) Recoveries							
EP075(SIM)A: Phenolic Compounds	3811100-002	----	2,4-Dichlorophenol	120-83-2	112 %	68-112%	Recovery greater than upper control limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	3811100-002	----	Dibenz(a,h)anthracene	53-70-3	115 %	71.7-113%	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

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075(SIM)T: PAH Surrogates	ES1326152-010	LL_MW01_3.0	Anthracene-d10	1719-06-8	59.1 %	66-128 %	Recovery less than lower data quality objective

Outliers : Analysis Holding Time Compliance

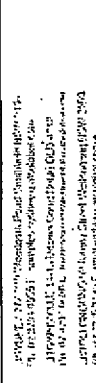
This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- 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.



CHAIN OF CUSTODY
ALS Laboratory
Please tick →

45001250 7318 Wembury Road, Wembury, Devon PL20 8DQ
Tel: 01548 872122 Fax: 01548 872132
45001251 7318 Wembury Road, Wembury, Devon PL20 8DQ
Tel: 01548 872122 Fax: 01548 872132
45001252 7318 Wembury Road, Wembury, Devon PL20 8DQ
Tel: 01548 872122 Fax: 01548 872132
45001253 7318 Wembury Road, Wembury, Devon PL20 8DQ
Tel: 01548 872122 Fax: 01548 872132
45001254 7318 Wembury Road, Wembury, Devon PL20 8DQ
Tel: 01548 872122 Fax: 01548 872132
45001255 7318 Wembury Road, Wembury, Devon PL20 8DQ
Tel: 01548 872122 Fax: 01548 872132

CLIENT: **ERM**
OFFICE: **Sydney**
PROJECT: **Project Sydney 0974198**
ORDER NUMBER: **0**
PROJECT MANAGER: **Joseph Perry**
SAMPLER: **Joshua Konrad**
COC enrolled to ALS? (YES / NO): **YES**

TURNAROUND REQUIREMENTS: Standard TAT (List due date); Non Standard or Urgent TAT (List due date)
ALS QUOTE NO.: **SY19M13**
SITE: **BAYSWATER (ADEL)**
CONTACT PH: _____
SAMPLER MOBILE: _____
EDD FORMAT (or default): _____
RECEIVED BY: **SMC**
DATE/TIME: **2/10/13 11:15**

FOR LABORATORY USE ONLY (Circle)
Custom Sample Impact? No Yes
Frag Ice / Resin Ice blocks present upon receipt? **YES**
Random Sample Temperature on Receipt **4/1**
Other comment: _____
RELINQUISHED BY: **Joseph Perry**
DATE/TIME: **2/11/13 17:00**

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

SAMPLE DETAILS		CONTAINER INFORMATION				ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price)	Additional Information						
LAB ID	MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE CODES (Uppercase)		CONTAINERS (refer to)				Where Metals are required, specify Total (undisturbed bulk required) or Dissolved (field filtered bulk required).	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.		
						TOTAL							
1	LL-MW02-0.5	28/11/13	soil										
2	LL-MW07-0.5												
3	LL-MW05-0.5												
4	LL-SB07-0.1												
5	LL-SB04-0.5												
6	LL-SB01-9.5												
7	LL-SB10-0.5												
8	D01-281132JK												
9	LL-SB08-0.5												
10	LL-SB09-0.5												
11	LL-SB14-0.5												
12	LL-MW04-2.3												

Environmental Division
Sydney
Work Order
ES1326153
Barcode
Telephone: + 61-2-8784 8555

Winkor/Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; CHC = Nitric Preserved CHC; SFC = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved Plastic; AC = Amber Glass Unpreserved Plastic; AP = Airtight Unpreserved Plastic
V = VOA Vial HCl Preserved; VG = VOA Vial Sodium Disulphate Preserved; VS = VOA Vial Sulphur Preserved; AV = Airtight Unpreserved Vial; SQ = Sulfuric Preserved Amber Glass; H = HCl Preserved Amber Glass; H2 = HCl Preserved Special-Bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; BT = Strontium Borate; ABP = Plastic Jar for Acid Strontium Borate; B = Unpreserved Jar

ES132653-2

ALS
CHAIN OF CUSTODY
 ALS Laboratory
 please visit: www.als.com

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

TURNAROUND REQUIREMENTS:
 (Standard TAT may be longer for some tests esp. Ultra Trace Analysis)
 ALS QUOTE NO.: 51794113

SITE: BAYSWATER / LUDDELL
CONTACT PH:
SAMPLER MOBILE:
EDD FORMAT (or default):

RECEIVED BY: Joshua Koval
DATE/TIME: 28/11/13

RECEIVED BY: [Signature]
DATE/TIME: 2/12/13 11:25

RECEIVED BY: [Signature]
DATE/TIME: 2/12/13 12:00

FOR LABORATORY USE ONLY (Circle)
 Cuside Seal Intact? Yes No
 Free Ice / frozen ice blocks present upon receipt? Yes No
 Random Sample Temperature on Receipt: °C
 Other comment:

CLIENT:
OFFICE:
PROJECT: Project Symphony
ORDER NUMBER:
PROJECT MANAGER:
SAMPLER:
COC emailed to ALS? (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:

ALS USE	SAMPLE ID	DATE / TIME	MATRIX	CONTAINER INFORMATION		ANALYSIS REQUIRED INCLUDING SUITES (N/A, Suite Codes must be listed to attract extra price) Where Metals are required, specify Total (unfiltered bottle required) or Discolored (final filtered bottle required).	Additional Information
				TYPE & PRESERVATIVE container / vial / jar	TOTAL CONTAINERS (refer to)		
13	66-5601-2-5		SOIL			17 Metals (As, Ba, Pb, Zn, Hg) X S-2 Metals (As, Cd, Cr, Cu, Ni) X S-24 TRHCs (C40) BTEXN, PAH, Phenols X VOC Target Scan X PCB X pH (1-5) Exchangable cations (ED07) PFOS/PFOA Asbestos (absence/presence) Particle Sizing to 75µm (Sieve) Organic Matter plus Total Organic Carbon (F084)	Comments on any contaminant levels, dilutions, or samples requiring specific QC analysis etc.
14	Ref - 28/11/13						
15	TB						
16	TSC 11 - 20/11/13						
17	TSC 13 - 20/11						
18	TSC 11						
17	TSC 13						

Water Containment Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; DIC = Nitric Preserved DIC; S1 = Sodium Hydroxide Preserved Plastic; S = Sodium Hydroxide Preserved Plastic; AS = Amber Glass Unpreserved; AP = Amber Glass Unpreserved Plastic
 V = VOA Vol HCl Preserved; VD = VOA Vol Sodium Bisulfate Preserved; VS = VOA Vol Sodium Bisulfate Preserved; VS = VOA Vol Sodium Bisulfate Preserved; V6 = VOA Vol Sodium Bisulfate Preserved; V7 = VOA Vol Sodium Bisulfate Preserved
 Z = Zinc Acetate Preserved; Z1 = EDTA Preserved; Z2 = EDTA Preserved; Z3 = EDTA Preserved; Z4 = EDTA Preserved; Z5 = EDTA Preserved; Z6 = EDTA Preserved; Z7 = EDTA Preserved; Z8 = EDTA Preserved; Z9 = EDTA Preserved

28/11/13
 Rec'd.

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1326153	
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 : 0224198 C-O-C number : ---- Site : ---- Sampler : JK	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 : 02-DEC-2013 Client Requested Due Date : 09-DEC-2013	Issue Date : 09-DEC-2013 15:38 Scheduled Reporting Date : 09-DEC-2013
----------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------

Delivery Details

Mode of Delivery : Carrier No. of coolers/boxes : 1 HARD Security Seal : Intact.	Temperature : 4.1°C - Ice present No. of samples received : 19 No. of samples analysed : 18
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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 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 - ASB-SOL (Subcontracted) Asbestos - Count (Solid)	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
ES1326153-001	28-NOV-2013 15:00	LL_MW02_0.5	✓	✓			✓
ES1326153-002	28-NOV-2013 15:00	LL_MW07_0.5	✓	✓			✓
ES1326153-003	28-NOV-2013 15:00	LL_MW05_0.5	✓	✓			✓
ES1326153-004	28-NOV-2013 15:00	LL_SB07_0.1	✓	✓			✓
ES1326153-005	28-NOV-2013 15:00	LL_SB04_0.5	✓	✓			✓
ES1326153-006	28-NOV-2013 15:00	LL_SB01_9.5	✓	✓			✓
ES1326153-007	28-NOV-2013 15:00	LL_SB10_0.5	✓	✓	✓		✓
ES1326153-008	28-NOV-2013 15:00	D01_281113_JK	✓	✓			✓
ES1326153-009	28-NOV-2013 15:00	LL_SB08_0.5	✓	✓			✓
ES1326153-010	28-NOV-2013 15:00	LL_SB09_0.5	✓	✓			✓
ES1326153-011	28-NOV-2013 15:00	LL_SB14_0.5	✓	✓			✓
ES1326153-012	28-NOV-2013 15:00	LL_MW04_2.3		✓			✓
ES1326153-013	28-NOV-2013 15:00	LL_SB01_2.5		✓			✓
ES1326153-015	20-NOV-2013 15:00	TB				✓	
ES1326153-016	20-NOV-2013 15:00	TS11				✓	
ES1326153-017	20-NOV-2013 15:00	TS13				✓	
ES1326153-018	20-NOV-2013 15:00	TSC11				✓	
ES1326153-019	20-NOV-2013 15:00	TSC13				✓	

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) WATER No analysis requested
ES1326153-014	28-NOV-2013 15:00	R01_28/11/13	✓



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
- 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

THE ACCOUNTS PAYABLE

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

Work Order : ES1326153 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 : JK 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 : 02-DEC-2013 Issue Date : 09-DEC-2013 No. of samples received : 19 No. of samples analysed : 18
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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>
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Raymond Commodor	Instrument Chemist	Sydney 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

- **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.**
- **EP074/EP080: Samples not received in a suitable timeframe to conduct the EP080 analysis within the recommended holding time.**



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LL_MW02_0.5	LL_MW07_0.5	LL_MW05_0.5	LL_SB07_0.1	LL_SB04_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	ES1326153-001	ES1326153-002	ES1326153-003	ES1326153-004	ES1326153-005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	23.0	18.6	25.2	18.8	24.9
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	10	8	10	6	7
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	20	14	34	12	10
Copper	7440-50-8	5	mg/kg	9	9	11	14	7
Lead	7439-92-1	5	mg/kg	14	11	14	13	12
Nickel	7440-02-0	2	mg/kg	10	7	26	9	2
Zinc	7440-66-6	5	mg/kg	34	29	28	60	19
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
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



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LL_MW02_0.5	LL_MW07_0.5	LL_MW05_0.5	LL_SB07_0.1	LL_SB04_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	ES1326153-001	ES1326153-002	ES1326153-003	ES1326153-004	ES1326153-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	3480	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	1960	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	5440	<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	5070	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	620	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	5690	<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



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LL_MW02_0.5	LL_MW07_0.5	LL_MW05_0.5	LL_SB07_0.1	LL_SB04_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	ES1326153-001	ES1326153-002	ES1326153-003	ES1326153-004	ES1326153-005
EP080: BTEXN - Continued								
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	60.6	64.3	61.4	111	61.1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	85.8	85.7	85.2	82.9	83.2
2-Chlorophenol-D4	93951-73-6	0.1	%	96.2	95.5	96.9	92.9	95.6
2,4,6-Tribromophenol	118-79-6	0.1	%	103	104	107	106	106
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	105	104	108	103	105
Anthracene-d10	1719-06-8	0.1	%	93.6	94.8	96.8	93.0	95.4
4-Terphenyl-d14	1718-51-0	0.1	%	96.6	98.0	100	96.5	98.0
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	118	105	106	121	104
Toluene-D8	2037-26-5	0.1	%	118	111	103	122	104
4-Bromofluorobenzene	460-00-4	0.1	%	115	105	109	113	109



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				LL_SB01_9.5	LL_SB10_0.5	D01_281113_JK	LL_SB08_0.5	LL_SB09_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
				ES1326153-006	ES1326153-007	ES1326153-008	ES1326153-009	ES1326153-010
Compound	CAS Number	LOR	Unit					
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	20.6	24.0	22.5	10.9	22.1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	7	15	8	5	14
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	19	24	19	20	39
Copper	7440-50-8	5	mg/kg	11	7	11	26	21
Lead	7439-92-1	5	mg/kg	13	13	13	12	10
Nickel	7440-02-0	2	mg/kg	9	12	9	20	11
Zinc	7440-66-6	5	mg/kg	37	24	36	96	61
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	----	----	----
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

				LL_SB01_9.5	LL_SB10_0.5	D01_281113_JK	LL_SB08_0.5	LL_SB09_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	ES1326153-006	ES1326153-007	ES1326153-008	ES1326153-009	ES1326153-010
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

				LL_SB01_9.5	LL_SB10_0.5	D01_281113_JK	LL_SB08_0.5	LL_SB09_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	ES1326153-006	ES1326153-007	ES1326153-008	ES1326153-009	ES1326153-010
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

				LL_SB01_9.5	LL_SB10_0.5	D01_281113_JK	LL_SB08_0.5	LL_SB09_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	ES1326153-006	ES1326153-007	ES1326153-008	ES1326153-009	ES1326153-010
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
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	110	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	110	<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	160	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	160	<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

				LL_SB01_9.5	LL_SB10_0.5	D01_281113_JK	LL_SB08_0.5	LL_SB09_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	ES1326153-006	ES1326153-007	ES1326153-008	ES1326153-009	ES1326153-010
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
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	65.6	61.5	64.1	62.5	61.0
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	96.3	----	----	----
Toluene-D8	2037-26-5	0.1	%	----	110	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	99.1	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	82.4	82.0	81.5	80.4	80.8
2-Chlorophenol-D4	93951-73-6	0.1	%	95.4	94.6	92.8	88.7	92.4
2,4,6-Tribromophenol	118-79-6	0.1	%	108	103	101	93.5	96.5
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	108	104	103	96.6	101
Anthracene-d10	1719-06-8	0.1	%	97.7	92.7	93.2	88.4	91.2
4-Terphenyl-d14	1718-51-0	0.1	%	101	96.9	96.0	89.9	94.6
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	117	89.5	111	106	120
Toluene-D8	2037-26-5	0.1	%	115	102	109	106	116
4-Bromofluorobenzene	460-00-4	0.1	%	107	96.9	103	97.9	110



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LL_SB14_0.5	LL_MW04_2.3	LL_SB01_2.5	TB	TS11
				28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326153-011	ES1326153-012	ES1326153-013	ES1326153-015	ES1326153-016
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	26.2	11.3	20.2	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	10	14	11	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	20	21	22	----	----
Copper	7440-50-8	5	mg/kg	6	6	9	----	----
Lead	7439-92-1	5	mg/kg	11	<5	18	----	----
Nickel	7440-02-0	2	mg/kg	3	4	5	----	----
Zinc	7440-66-6	5	mg/kg	15	20	25	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<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	<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	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LL_SB14_0.5	LL_MW04_2.3	LL_SB01_2.5	TB	TS11
				28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326153-011	ES1326153-012	ES1326153-013	ES1326153-015	ES1326153-016
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	<10	32
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	37
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	25
>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	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	5.2
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	0.8
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	4.4
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	1.9
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	12.3
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	6.3



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LL_SB14_0.5	LL_MW04_2.3	LL_SB01_2.5	TB	TS11
				28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326153-011	ES1326153-012	ES1326153-013	ES1326153-015	ES1326153-016
EP080: BTEXN - Continued								
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	61.1	62.0	60.5	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	87.5	79.8	73.8	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	98.9	86.9	94.4	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	106	90.2	99.8	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	109	95.6	106	----	----
Anthracene-d10	1719-06-8	0.1	%	97.3	87.1	94.9	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	103	89.7	98.1	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	118	98.8	115	103	102
Toluene-D8	2037-26-5	0.1	%	116	89.6	106	94.0	94.8
4-Bromofluorobenzene	460-00-4	0.1	%	112	83.0	101	91.2	93.7



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

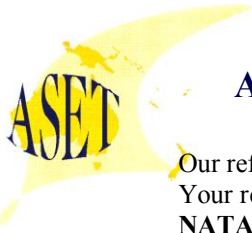
Client sampling date / time

				TS13	TSC11	TSC13	----	----
				20-NOV-2013 15:00	20-NOV-2013 15:00	20-NOV-2013 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1326153-017	ES1326153-018	ES1326153-019	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	29	90	83	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	32	101	93	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	22	68	62	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	0.5	0.6	----	----
Toluene	108-88-3	0.5	mg/kg	5.1	15.9	15.2	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	0.6	2.0	1.8	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	3.2	10.2	9.4	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	1.3	4.0	3.7	----	----
^ Sum of BTEX	----	0.2	mg/kg	10.2	32.6	30.7	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	4.5	14.2	13.1	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	86.4	106	102	----	----
Toluene-D8	2037-26-5	0.1	%	96.0	104	90.9	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	97.0	99.5	89.2	----	----



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



AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD

ABN 36 088 095 112

Our ref : ASET36448/ 39628 / 1 - 11

Your ref : ES1326153

NATA Accreditation No: 14484

9 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 eleven samples, forwarded by Australian Laboratory Services Pty Ltd on 8 December 2013, for analysis for asbestos.

1. Introduction: Eleven 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. ASET36448 / 39628 / 1. ES1326153 - 001 - LL - MW02 - 0.5.**
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, sandstone and cement.
No asbestos detected.

Sample No. 2. ASET36448 / 39628 / 2. ES1326153 - 002 - LL - MW07 - 0.5.
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 glass
No asbestos detected.

Sample No. 3. ASET36448 / 39628 / 3. ES1326153 - 003 - LL - MW05 - 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. 4. ASET36448 / 39628 / 4. ES1326153 - 004 - LL - SB07 - 0.1.
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.
No asbestos detected.

Sample No. 5. ASET36448 / 39628 / 5. ES1326153 - 005 - LL - SB04 - 0.5.
Approx dimensions 10.0 cm x 7.5 cm x 4.5 cm
The sample consisted of a mixture of clayish soil, stones, plant matter 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

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ASET

Sample No. 6. ASET36448 / 39628 / 6. ES1326153 - 007 - LL - SB10 - 0.5.

Approx dimensions 10.0 cm x 7.0 cm x 4.5 cm

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster.

No asbestos detected.

Sample No. 7. ASET36448 / 39628 / 7. ES1326153 - 007 - LL - SB10 - 0.5.

Approx dimensions 10.0 cm x 8.0 cm x 4.75 cm

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster.

No asbestos detected.

Sample No. 8. ASET36448 / 39628 / 8. ES1326153 - 008 - DO1 - 281113- - JK.

Approx dimensions 10.0 cm x 7.5 cm x 5.0 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. 9. ASET36448 / 39628 / 9. ES1326153 - 009 - LL - SB08- 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.

No asbestos detected.

Sample No. 10. ASET36448 / 39628 / 10. ES1326153 - 010 - LL - SB09 - 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.

No asbestos detected.

Sample No. 11. ASET36448 / 39628 / 11. ES1326153 - 011 - LL - SB14 - 0.5.

Approx dimensions 10.0 cm x 8.5 cm x 5.5 cm

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster.

No asbestos detected.

Analysed and reported by,



**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	: ES1326153	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	: ----	Date Samples Received	: 02-DEC-2013
C-O-C number	: ----	Issue Date	: 09-DEC-2013
Sampler	: JK	No. of samples received	: 19
Order number	: 0224198	No. of samples analysed	: 18
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



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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>
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Raymond Commodor	Instrument Chemist	Sydney 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 (%)
EA055: Moisture Content (QC Lot: 3196028)									
ES1326153-003	LL_MW05_0.5	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	25.2	24.5	2.7	0% - 20%
ES1326162-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	16.3	16.3	0.0	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 3197549)									
ES1326153-001	LL_MW02_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	23	10.9	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	10	10	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	11	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	9	8	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	14	14	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	34	32	8.3	No Limit
ES1326153-011	LL_SB14_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	18	7.2	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	3	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	9	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	11	11	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	15	15	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3197550)									
ES1326153-001	LL_MW02_0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326153-011	LL_SB14_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: 3193827)									
ES1326153-001	LL_MW02_0.5	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326153-011	LL_SB14_0.5	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3195424)									
ES1326153-007	LL_SB10_0.5	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: 3195424)							
ES1326153-007	LL_SB10_0.5	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: 3195424) - continued									
ES1326153-007	LL_SB10_0.5	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: 3195424)									
ES1326153-007	LL_SB10_0.5	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3195424)									
ES1326153-007	LL_SB10_0.5	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: 3195424)									
ES1326153-007	LL_SB10_0.5	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: 3195424)									
ES1326153-007	LL_SB10_0.5	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: 3195424)									
ES1326153-007	LL_SB10_0.5	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: 3195424)									
ES1326153-007	LL_SB10_0.5	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3193868)									
ES1326153-001	LL_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
		ES1326153-011	LL_SB14_0.5	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: 3193868) - continued									
ES1326153-011	LL_SB14_0.5	EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3193868)									
ES1326153-001	LL_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		
ES1326153-011	LL_SB14_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		



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: 3193867)										
ES1326153-001	LL_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	
ES1326153-011	LL_SB14_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: 3195423)										
ES1326153-007	LL_SB10_0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1326153-011	LL_SB14_0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3193867)										
ES1326153-001	LL_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	
ES1326153-011	LL_SB14_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: 3195423)										
ES1326153-007	LL_SB10_0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1326153-011	LL_SB14_0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
EP080: BTEXN (QC Lot: 3195423)										
ES1326153-007	LL_SB10_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	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	
ES1326153-011	LL_SB14_0.5	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			



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: 3197549)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	114	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	112	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	109	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	112	81	133	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3197550)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	83.0	66	112	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3193827)									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	102	57.4	117	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3195424)									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	77.2	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	97.6	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	96.2	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	97.4	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	99.3	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	90.8	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	93.9	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	86.4	61	131	
EP074B: Oxygenated Compounds (QCLot: 3195424)									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	51.7	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	126	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	88.7	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	110	54	136	
		5	mg/kg	<5	----	----	----	----	
EP074C: Sulfonated Compounds (QCLot: 3195424)									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	89.0	54	126	
EP074D: Fumigants (QCLot: 3195424)									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	100	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: 3195424) - continued									
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	91.1	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	86.0	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	82.2	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	83.5	66	126	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3195424)									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	65.9	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	93.8	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	95.7	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	74.3	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	88.8	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	82.1	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	88.6	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	80.0	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	103	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	110	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	102	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	108	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	104	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	95.7	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	110	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	87.7	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	98.4	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	107	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	86.8	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	77.7	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	76.2	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	76.9	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	83.8	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	67.9	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	101	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: 3195424)									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	90.0	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	88.8	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	93.0	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	98.7	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	94.0	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	90.5	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	89.2	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	93.2	60	132	
EP074G: Trihalomethanes (QCLot: 3195424)									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	102	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	92.0	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	83.1	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	81.4	60	126	
EP074H: Naphthalene (QCLot: 3195424)									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	104	63	133	
		5	mg/kg	<5	----	----	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3193868)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	86.8	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	93.7	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	93.1	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	97.4	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	80.6	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	85.0	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	91.8	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	95.3	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	89.7	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	87.5	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	91.6	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	18.2	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3193868)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	98.6	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	105	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	99.9	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	105	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	102	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: 3193868) - continued								
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	106	79	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	94.7	73	121
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	99.6	81	123
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	85.4	70	118
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	96.4	77	123
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	94.6	76	122
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	87.9	71	113
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	86.0	71.7	113
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	87.1	72.4	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3193867)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	120	71	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	114	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	91.6	64	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3195423)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	104	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3193867)								
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	108	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
		50	mg/kg	----	150 mg/kg	71.2	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3195423)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	106	68.4	128
EP080: BTEXN (QCLot: 3195423)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	105	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	109	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	102	58	118
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	101	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	116	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	SpikeRecovery(%)	Recovery Limits (%)
				Concentration	MS	Low High



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
EG005T: Total Metals by ICP-AES (QCLot: 3197549)							
ES1326153-001	LL_MW02_0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	113	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	102	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	109	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	106	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	102	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	104	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3197550)							
ES1326153-001	LL_MW02_0.5	EG035T: Mercury	7439-97-6	5 mg/kg	92.6	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3193827)							
ES1326153-001	LL_MW02_0.5	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	107	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3195424)							
ES1326153-007	LL_SB10_0.5	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	81.8	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	101	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3195424)							
ES1326153-007	LL_SB10_0.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	96.7	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3193868)							
ES1326153-001	LL_MW02_0.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	75.9	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	82.6	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	79.2	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	80.6	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	48.5	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3193868)							
ES1326153-001	LL_MW02_0.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	85.4	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	91.1	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3193867)							
ES1326153-001	LL_MW02_0.5	EP071: C10 - C14 Fraction	----	640 mg/kg	82.9	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	82.0	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	71.9	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3195423)							
ES1326153-007	LL_SB10_0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	127	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3193867)							
ES1326153-001	LL_MW02_0.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	104	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.5	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	55.6	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3195423)							



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	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3195423) - continued								
ES1326153-007	LL_SB10_0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	126	70	130	
EP080: BTEXN (QCLot: 3195423)								
ES1326153-007	LL_SB10_0.5	EP080: Benzene	71-43-2	2.5 mg/kg	102	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	108	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	108	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	107	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	103	70	130	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	90.0	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 (%)
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3193827)										
ES1326153-001	LL_MW02_0.5	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	107	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3193867)										
ES1326153-001	LL_MW02_0.5	EP071: C10 - C14 Fraction	----	640 mg/kg	82.9	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	82.0	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	71.9	----	52	132	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3193867)										
ES1326153-001	LL_MW02_0.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	104	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.5	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	55.6	----	52	132	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3193868)										
ES1326153-001	LL_MW02_0.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	75.9	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	82.6	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	79.2	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	80.6	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	48.5	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3193868)										
ES1326153-001	LL_MW02_0.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	85.4	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	91.1	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3195423)										
ES1326153-007	LL_SB10_0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	127	----	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 Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3195423)											
ES1326153-007	LL_SB10_0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	126	----	70	130	----	----	
EP080: BTEXN (QCLot: 3195423)											
ES1326153-007	LL_SB10_0.5	EP080: Benzene	71-43-2	2.5 mg/kg	102	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	108	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	108	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	107	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	103	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	90.0	----	70	130	----	----	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3195424)											
ES1326153-007	LL_SB10_0.5	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	81.8	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	101	----	70	130	----	----	
EP074F: Halogenated Aromatic Compounds (QCLot: 3195424)											
ES1326153-007	LL_SB10_0.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	96.7	----	70	130	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3197549)											
ES1326153-001	LL_MW02_0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	113	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	102	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	109	----	70	130	----	----	
		EG005T: Lead	7439-92-1	125 mg/kg	106	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	102	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	125 mg/kg	104	----	70	130	----	----	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3197550)											
ES1326153-001	LL_MW02_0.5	EG035T: Mercury	7439-97-6	5 mg/kg	92.6	----	70	130	----	----	

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326153	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	: 02-DEC-2013
C-O-C number	: ----	Issue Date	: 09-DEC-2013
Sampler	: JK	No. of samples received	: 19
Order number	: 0224198	No. of samples analysed	: 18
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)								
LL_MW02_0.5, LL_MW05_0.5, LL_SB04_0.5, LL_SB10_0.5, LL_SB08_0.5, LL_SB14_0.5, LL_SB01_2.5	LL_MW07_0.5, LL_SB07_0.1, LL_SB01_9.5, D01_281113_JK, LL_SB09_0.5, LL_MW04_2.3,	28-NOV-2013	----	----	----	05-DEC-2013	12-DEC-2013	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
LL_MW02_0.5, LL_MW05_0.5, LL_SB04_0.5, LL_SB10_0.5, LL_SB08_0.5, LL_SB14_0.5, LL_SB01_2.5	LL_MW07_0.5, LL_SB07_0.1, LL_SB01_9.5, D01_281113_JK, LL_SB09_0.5, LL_MW04_2.3,	28-NOV-2013	06-DEC-2013	27-MAY-2014	✓	06-DEC-2013	27-MAY-2014	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
LL_MW02_0.5, LL_MW05_0.5, LL_SB04_0.5, LL_SB10_0.5, LL_SB08_0.5, LL_SB14_0.5, LL_SB01_2.5	LL_MW07_0.5, LL_SB07_0.1, LL_SB01_9.5, D01_281113_JK, LL_SB09_0.5, LL_MW04_2.3,	28-NOV-2013	06-DEC-2013	26-DEC-2013	✓	09-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
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) LL_MW02_0.5, LL_MW05_0.5, LL_SB04_0.5, LL_SB10_0.5, LL_SB08_0.5, LL_SB14_0.5, LL_SB01_2.5 LL_MW07_0.5, LL_SB07_0.1, LL_SB01_9.5, D01_281113_JK, LL_SB09_0.5, LL_MW04_2.3	28-NOV-2013	06-DEC-2013	12-DEC-2013	✓	06-DEC-2013	15-JAN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Soil Glass Jar - Unpreserved (EP071) LL_MW02_0.5, LL_MW05_0.5, LL_SB04_0.5, LL_SB10_0.5, LL_SB08_0.5, LL_SB14_0.5, LL_SB01_2.5 LL_MW07_0.5, LL_SB07_0.1, LL_SB01_9.5, D01_281113_JK, LL_SB09_0.5, LL_MW04_2.3	28-NOV-2013	07-DEC-2013	12-DEC-2013	✓	07-DEC-2013	16-JAN-2014	✓
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074) LL_SB10_0.5	28-NOV-2013	06-DEC-2013	05-DEC-2013	*	06-DEC-2013	05-DEC-2013	*
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074) LL_SB10_0.5	28-NOV-2013	06-DEC-2013	05-DEC-2013	*	06-DEC-2013	05-DEC-2013	*
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074) LL_SB10_0.5	28-NOV-2013	06-DEC-2013	05-DEC-2013	*	06-DEC-2013	05-DEC-2013	*
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074) LL_SB10_0.5	28-NOV-2013	06-DEC-2013	05-DEC-2013	*	06-DEC-2013	05-DEC-2013	*
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074) LL_SB10_0.5	28-NOV-2013	06-DEC-2013	05-DEC-2013	*	06-DEC-2013	05-DEC-2013	*
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074) LL_SB10_0.5	28-NOV-2013	06-DEC-2013	05-DEC-2013	*	06-DEC-2013	05-DEC-2013	*
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved (EP074) LL_SB10_0.5	28-NOV-2013	06-DEC-2013	05-DEC-2013	*	06-DEC-2013	05-DEC-2013	*
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074) LL_SB10_0.5	28-NOV-2013	06-DEC-2013	05-DEC-2013	*	06-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)) LL_MW02_0.5, LL_MW05_0.5, LL_SB04_0.5, LL_SB10_0.5, LL_SB08_0.5, LL_SB14_0.5, LL_SB01_2.5	LL_MW07_0.5, LL_SB07_0.1, LL_SB01_9.5, D01_281113_JK, LL_SB09_0.5, LL_MW04_2.3	28-NOV-2013	07-DEC-2013	12-DEC-2013	✓	07-DEC-2013	16-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) LL_MW02_0.5, LL_MW05_0.5, LL_SB04_0.5, LL_SB10_0.5, LL_SB08_0.5, LL_SB14_0.5, LL_SB01_2.5	LL_MW07_0.5, LL_SB07_0.1, LL_SB01_9.5, D01_281113_JK, LL_SB09_0.5, LL_MW04_2.3	28-NOV-2013	07-DEC-2013	12-DEC-2013	✓	07-DEC-2013	16-JAN-2014	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) TB, TS13, TSC13	TS11, TSC11,	20-NOV-2013	06-DEC-2013	04-DEC-2013	*	06-DEC-2013	04-DEC-2013	*
Soil Glass Jar - Unpreserved (EP080) LL_MW02_0.5, LL_MW05_0.5, LL_SB04_0.5, LL_SB10_0.5, LL_SB08_0.5, LL_SB14_0.5, LL_SB01_2.5	LL_MW07_0.5, LL_SB07_0.1, LL_SB01_9.5, D01_281113_JK, LL_SB09_0.5, LL_MW04_2.3	28-NOV-2013	06-DEC-2013	12-DEC-2013	✓	06-DEC-2013	12-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 Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080)								
TB, TS13, TSC13	TS11, TSC11,	20-NOV-2013	06-DEC-2013	04-DEC-2013	✖	06-DEC-2013	04-DEC-2013	✖
Soil Glass Jar - Unpreserved (EP080)								
LL_MW02_0.5, LL_MW05_0.5, LL_SB04_0.5, LL_SB10_0.5, LL_SB08_0.5, LL_SB14_0.5, LL_SB01_2.5	LL_MW07_0.5, LL_SB07_0.1, LL_SB01_9.5, D01_281113_JK, LL_SB09_0.5, LL_MW04_2.3,	28-NOV-2013	06-DEC-2013	12-DEC-2013	✔	06-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)							
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	14	14.3	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	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	3	33.3	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	14	7.1	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	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	3	33.3	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
Polychlorinated Biphenyls (PCB)	EP066	1	14	7.1	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	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	3	33.3	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
Polychlorinated Biphenyls (PCB)	EP066	1	14	7.1	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	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	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
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)

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

- 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
EP074A: Monocyclic Aromatic Hydrocarbons						
Soil Glass Jar - Unpreserved LL_SB10_0.5	06-DEC-2013	05-DEC-2013	1	06-DEC-2013	05-DEC-2013	1
EP074B: Oxygenated Compounds						
Soil Glass Jar - Unpreserved LL_SB10_0.5	06-DEC-2013	05-DEC-2013	1	06-DEC-2013	05-DEC-2013	1
EP074C: Sulfonated Compounds						
Soil Glass Jar - Unpreserved LL_SB10_0.5	06-DEC-2013	05-DEC-2013	1	06-DEC-2013	05-DEC-2013	1
EP074D: Fumigants						
Soil Glass Jar - Unpreserved LL_SB10_0.5	06-DEC-2013	05-DEC-2013	1	06-DEC-2013	05-DEC-2013	1
EP074E: Halogenated Aliphatic Compounds						
Soil Glass Jar - Unpreserved LL_SB10_0.5	06-DEC-2013	05-DEC-2013	1	06-DEC-2013	05-DEC-2013	1
EP074F: Halogenated Aromatic Compounds						
Soil Glass Jar - Unpreserved LL_SB10_0.5	06-DEC-2013	05-DEC-2013	1	06-DEC-2013	05-DEC-2013	1
EP074G: Trihalomethanes						
Soil Glass Jar - Unpreserved LL_SB10_0.5	06-DEC-2013	05-DEC-2013	1	06-DEC-2013	05-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
EP074H: Naphthalene						
Soil Glass Jar - Unpreserved LL_SB10_0.5	06-DEC-2013	05-DEC-2013	1	06-DEC-2013	05-DEC-2013	1
EP080/071: Total Petroleum Hydrocarbons						
Soil Glass Jar - Unpreserved TB, TS11, TS13, TSC11, TSC13	06-DEC-2013	04-DEC-2013	2	06-DEC-2013	04-DEC-2013	2
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013						
Soil Glass Jar - Unpreserved TB, TS11, TS13, TSC11, TSC13	06-DEC-2013	04-DEC-2013	2	06-DEC-2013	04-DEC-2013	2
EP080: BTEXN						
Soil Glass Jar - Unpreserved TB, TS11, TS13, TSC11, TSC13	06-DEC-2013	04-DEC-2013	2	06-DEC-2013	04-DEC-2013	2

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

ALS Laboratory
12000 170th Avenue
Edmonton, Alberta T6E 4R1
Canada
Tel: 780-443-8200
Fax: 780-443-8201
www.alslab.com

ALS Laboratory
12000 170th Avenue
Edmonton, Alberta T6E 4R1
Canada
Tel: 780-443-8200
Fax: 780-443-8201
www.alslab.com

CLIENT: **ERLY**

OFFICE: **SWAYNE Y**

PROJECT: **Project Synphony**

ORDER NUMBER: **0724498**

PROJECT MANAGER: **JOE HOYING**

SAMPLER: **RIZZO DEBENHUIS**

COC enabled to ALS? (YES/NO)

Email Reports to (will default to what no other addresses are listed)

Email Invoice to (will default to what no other addresses are listed)

TURNAROUND REQUIREMENTS:

Standard TAT may be longer for some tests, e.g. Ultra Trace Organics

ALS QUOTE NO.: **SY79413**

RECEIVED BY: **SMC**

DATE/TIME: **27/11/13 7.00**

RECEIVED BY: **SMC**

DATE/TIME: **21/12/13 19.00**

RECEIVED BY: **SMC**

DATE/TIME: **21/12/13 19.00**

CODE	SEQUENCE NUMBER	DATE/TIME	RECEIVED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1	1	27/11/13	SMC	11:15	SMC	21/12/13	SMC	19:00
2	2							
3	3							
4	4							
5	5							
6	6							
7	7							

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	TOTAL CONTAINERS (refer to)	ANALYSIS REQUIRED (including SITES (N/A). Some Codes must be fixed in strict order)		Additional Information	
						When Mobile are required, specify Total (unfilled) bottles retained or discarded (refer to client details)	When Mobile are required, specify Total (unfilled) bottles retained or discarded (refer to client details)	Comments on heavy equipment loads, influence of samples requiring specific COC analysis, etc.	
1	LP-MWDB3-0.2	27.11.13 09:50	SOIL		1 bag	X	X	X	
2	LD-MWIS-2.0	27.11.13	SOIL		1 bag	X	X	X	Hold
3	LD-MWIS-3.5	27.11.13	SOIL		1 bag	X	X	X	
4	ROL-271113								BTE x TRIF, METHAL

Sample #1 150 bag kept @ SW

Environmental Division
Sydney
Work Order
ES1326161



Telephone : + 61-2-8784 8556

midnight Precipitated Cores:

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: ES1326161		
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	: 0244198	Quote number	: ES2013ENVRES0369 (SY/794/13)
C-O-C number	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: LIDDELL		
Sampler	: RO		

Dates

Date Samples Received	: 02-DEC-2013	Issue Date	: 03-DEC-2013 16:08
Client Requested Due Date	: 11-DEC-2013	Scheduled Reporting Date	: 11-DEC-2013

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 4.8°C SYD - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 4
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.**
- **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 - EA150*	Particle Size Analysis by Sieving (Default sieves from SOIL - EP066 (solids))	Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids)	Volatile Organic Compounds	SOIL - EP231	Perfluorocyl/ Acids and Sulfonates by LC/MS/MS	SOIL - S-27	TRH/BTEXN/PAH/Phenols/8Metals
ES1326161-001	27-NOV-2013 09:50	LR_MW03_0.2			✓		✓	✓	✓	✓					✓
ES1326161-002	27-NOV-2013 15:00	LO_MW15_2.0						✓	✓	✓			✓		✓
ES1326161-003	27-NOV-2013 15:00	LO_MW15_3.5	✓												

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-05T	TRH/BTEXN/8 Metals (Total)
ES1326161-004	27-NOV-2013 15:00	R01_271113	✓	

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	: ES1326161	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
Order number	: 0244198	Date Samples Received	: 02-DEC-2013
C-O-C number	: ----	Issue Date	: 11-DEC-2013
Sampler	: RO	No. of samples received	: 4
Site	: LIDDELL	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 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.**
- **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

Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				LR_MW03_0.2	LO_MW15_2.0	---	---	---
				27-NOV-2013 09:50	27-NOV-2013 15:00	---	---	---
Client sampling date / time				ES1326161-001	ES1326161-002	---	---	---
Compound	CAS Number	LOR	Unit					
EA150: Particle Sizing								
+75µm	---	1	%	41	---	---	---	---
+150µm	---	1	%	28	---	---	---	---
+300µm	---	1	%	19	---	---	---	---
+425µm	---	1	%	14	---	---	---	---
+600µm	---	1	%	12	---	---	---	---
+1180µm	---	1	%	9	---	---	---	---
+2.36mm	---	1	%	7	---	---	---	---
+4.75mm	---	1	%	6	---	---	---	---
+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	6.7	---	---	---	---
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	---	1.0	%	17.2	18.8	---	---	---
EA150: Soil Classification based on Particle Size								
Fines (<75 µm)	---	1	%	59	---	---	---	---
Sand (>75 µm)	---	1	%	34	---	---	---	---
Gravel (>2mm)	---	1	%	7	---	---	---	---
Cobbles (>6cm)	---	1	%	<1	---	---	---	---
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	8	---	---	---
Cadmium	7440-43-9	1	mg/kg	<1	<1	---	---	---
Chromium	7440-47-3	2	mg/kg	18	14	---	---	---
Copper	7440-50-8	5	mg/kg	6	<5	---	---	---
Lead	7439-92-1	5	mg/kg	10	10	---	---	---
Nickel	7440-02-0	2	mg/kg	11	2	---	---	---
Zinc	7440-66-6	5	mg/kg	21	9	---	---	---
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	---	---	---
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	---	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				LR_MW03_0.2	LO_MW15_2.0	---	---	---
				27-NOV-2013 09:50	27-NOV-2013 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1326161-001	ES1326161-002	---	---	---
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	---	---	---
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	---	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LR_MW03_0.2	LO_MW15_2.0	---	---	---
				27-NOV-2013 09:50	27-NOV-2013 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1326161-001	ES1326161-002	---	---	---
EP074E: Halogenated Aliphatic Compounds - Continued								
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	---	---	---
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	---	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				LR_MW03_0.2	LO_MW15_2.0	---	---	---
				27-NOV-2013 09:50	27-NOV-2013 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1326161-001	ES1326161-002	---	---	---
EP074H: Naphthalene								
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	---	---	---
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	---	---	---
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	---	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				LR_MW03_0.2	LO_MW15_2.0	---	---	---
				27-NOV-2013 09:50	27-NOV-2013 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1326161-001	ES1326161-002	---	---	---
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	----	----	----
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	%	109	63.5	----	----	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	87.7	113	----	----	----
Toluene-D8	2037-26-5	0.1	%	96.9	117	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	93.1	113	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

LR_MW03_0.2	LO_MW15_2.0	----	----	----
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Client sampling date / time

27-NOV-2013 09:50	27-NOV-2013 15:00	----	----	----
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Compound	CAS Number	LOR	Unit	ES1326161-001	ES1326161-002	----	----	----
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EP075(SIM)S: Phenolic Compound Surrogates - Continued

Phenol-d6	13127-88-3	0.1	%	75.5	75.0	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	87.6	79.9	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	98.5	89.7	----	----	----

EP075(SIM)T: PAH Surrogates

2-Fluorobiphenyl	321-60-8	0.1	%	111	93.6	----	----	----
Anthracene-d10	1719-06-8	0.1	%	89.0	88.0	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	90.6	91.2	----	----	----

EP080S: TPH(V)/BTEX Surrogates

1,2-Dichloroethane-D4	17060-07-0	0.1	%	82.8	105	----	----	----
Toluene-D8	2037-26-5	0.1	%	87.7	108	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	89.2	109	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_271113

Client sampling date / time

27-NOV-2013 15:00

Compound	CAS Number	LOR	Unit	ES1326161-004	---	---	---	---
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	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	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	---	---	---	---
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	---	---	---	---
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	%	84.9	---	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_271113

Client sampling date / time

27-NOV-2013 15:00

Compound	CAS Number	LOR	Unit	ES1326161-004	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates - Continued								
Toluene-D8	2037-26-5	0.1	%	104	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	100	----	----	----	----



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

Certificate of Analysis

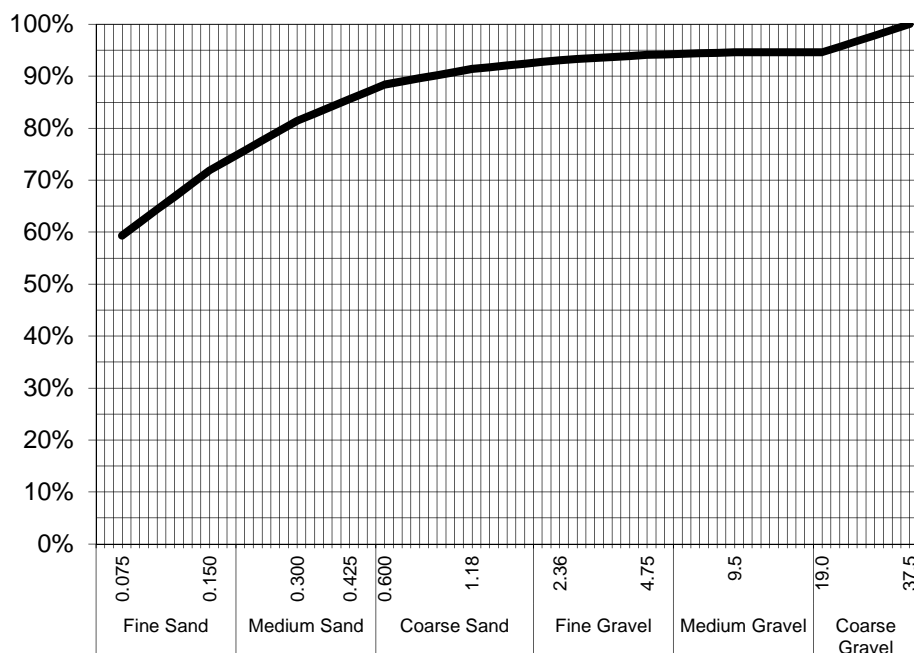
ALS Laboratory Group Pty Ltd
5 Rosegum Road
Warabrook, NSW 2304
pH 02 4968 9433
fax 02 4968 0349
samples.newcastle@alsenviro.com

ALS Environmental
Newcastle, NSW



CLIENT: Joseph Ferring **DATE REPORTED:** 6-Dec-2013
COMPANY: Enviro Resources Management **DATE RECEIVED:** 2-Dec-2013
ADDRESS: Ground Floor **REPORT NO:** ES1326161-001 / PSD
33 Saunders Street, Pyrmont
NSW 2009
PROJECT: Project Symphony **SAMPLE ID:** LR_MW03_0.2

Particle Size Distribution



Particle Size (mm)	Percent Passing
37.5	100%
19.0	95%
9.5	95%
4.75	94%
2.36	93%
1.18	91%
0.600	88%
0.425	86%
0.300	81%
0.150	72%
0.075	59%

Samples analysed as received.

Sample Comments:

Loss on Pretreatment NA

Sample Description: Fines and sand

Test Method: AS1289.3.6.1

Analysed: 5-Dec-13

Limit of Reporting: 1%

NATA Accreditation: 825 Site: Newcastle
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Accredited for compliance with ISO/IEC 17025. This document shall not be
reproduced, except in full.



Hamish Murray
Laboratory Supervisor, Newcastle
Authorised Signatory

QUALITY CONTROL REPORT

Work Order	: ES1326161	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	: LIDDELL	Date Samples Received	: 02-DEC-2013
C-O-C number	: ----	Issue Date	: 11-DEC-2013
Sampler	: RO	No. of samples received	: 4
Order number	: 0244198	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



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
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	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: 3195126)									
ES1326246-002	Anonymous	EA002: pH Value	----	0.1	pH Unit	5.4	5.3	0.0	0% - 20%
EA055: Moisture Content (QC Lot: 3201219)									
ES1325672-003	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	31.7	32.3	1.9	0% - 20%
ES1326314-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	<1.0	<1.0	0.0	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 3201217)									
ES1326161-001	LR_MW03_0.2	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	18	18	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: Zinc	7440-66-6	5	mg/kg	21	20	0.0	No Limit
ES1326688-009	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	4	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	5	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	12	12	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	8	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	138	181	# 26.7	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3201218)									
ES1326161-001	LR_MW03_0.2	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326688-009	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3192672)									
ES1326113-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3192659)									
ES1326113-001	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
ES1326180-005	Anonymous	EP074: Styrene	100-42-5	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 (%)
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3192659) - continued									
ES1326180-005	Anonymous	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: 3192659)									
ES1326113-001	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
ES1326180-005	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: 3192659)									
ES1326113-001	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1326180-005	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3192659)									
ES1326113-001	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
ES1326180-005	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: 3192659)									
ES1326113-001	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: 3192659) - continued									
ES1326113-001	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
ES1326180-005	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		



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: 3192659) - continued											
ES1326180-005	Anonymous	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: 3192659)											
ES1326113-001	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		
ES1326180-005	Anonymous	EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		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		
ES1326113-001	Anonymous	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		
		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		
		ES1326180-005	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		
EP074G: Trihalomethanes (QC Lot: 3192659)											
EP074H: Naphthalene (QC Lot: 3192659)											
ES1326113-001	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit		
ES1326180-005	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit		
EP075(SIM)A: Phenolic Compounds (QC Lot: 3192743)											
ES1326251-001	Anonymous	EP075(SIM): Phenol	108-95-2	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)A: Phenolic Compounds (QC Lot: 3192743) - continued									
ES1326251-001	Anonymous	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
ES1326251-009	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: 3192743)									
ES1326251-001	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
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	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: 3192743) - continued									
ES1326251-001	Anonymous	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
ES1326251-009	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
		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: 3192660)									
ES1326113-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1326180-005	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3192742)									
ES1326251-001	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
ES1326251-009	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: 3192660)									
ES1326113-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1326180-005	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: 3192742)									
ES1326251-001	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
ES1326251-009	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	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: 3192742) - continued									
ES1326251-009	Anonymous	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: 3192660)									
ES1326113-001	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
ES1326180-005	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	108-38-3 106-42-3	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: 3197438)									
EP1309231-059	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				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: 3200308)									
ES1326161-004	R01_271113	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	<0.001	<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	<0.001	<0.001	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	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES1326376-006	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	<0.001	<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	0.006	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	0.022	0.024	6.6	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.008	0.010	15.2	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3193041)									
ES1326161-004	R01_271113	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

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 Work Order : ES1326161
 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 (%)
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3193041) - continued									
ES1326219-007	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: 3194553)									
EN1304397-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1326213-009	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3194553)									
EN1304397-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1326213-009	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 3194553)									
EN1304397-001	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
ES1326213-009	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



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: 3201217)									
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	102	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	109	71	133	
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: 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	105	81	133	
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	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3192672)									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	70.0	57.4	117	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3192659)									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	89.9	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	94.5	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	95.0	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	94.9	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	98.7	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	93.8	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	94.8	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	98.2	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	97.4	61	131	
EP074B: Oxygenated Compounds (QCLot: 3192659)									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	64.7	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	115	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	99.9	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	98.2	54	136	
		5	mg/kg	<5	----	----	----	----	
EP074C: Sulfonated Compounds (QCLot: 3192659)									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	70.1	54	126	
EP074D: Fumigants (QCLot: 3192659)									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	82.5	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: 3192659) - continued									
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	88.5	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	77.2	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	85.8	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	88.2	66	126	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3192659)									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	30.2	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	63.3	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	88.9	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	60.2	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	66.6	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	69.6	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	71.4	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	71.6	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	76.1	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	82.6	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	85.4	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	79.1	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	87.4	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	80.5	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	90.9	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	87.9	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	90.5	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	95.3	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	95.3	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	96.9	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	77.1	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	88.7	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	86.6	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	93.4	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	101	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	89.1	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	87.7	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	93.9	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: 3192659)									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	91.6	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	96.4	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	97.7	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	98.6	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	95.7	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	97.1	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	94.1	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	90.7	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	95.3	60	132	
EP074G: Trihalomethanes (QCLot: 3192659)									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	86.2	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	88.8	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	95.4	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	115	60	126	
EP074H: Naphthalene (QCLot: 3192659)									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	99.5	63	133	
		5	mg/kg	<5	----	----	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3192743)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	79.8	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	95.2	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	96.9	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	96.1	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	75.4	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	87.4	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	92.8	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	98.1	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	89.5	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	86.7	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	96.3	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	24.1	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3192743)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	100	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	106	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	99.6	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	94.8	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	105	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	104	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	105	79	123	



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: 3192743) - continued									
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	106	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	95.4	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	98.4	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	82.8	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	99.2	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	86.7	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	87.2	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	82.2	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3192660)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	75.9	68.4	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3192742)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	103	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	100	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	85.0	64	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3192660)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	76.8	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3192742)									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	105	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	93.8	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	69.0	63	131	
EP080: BTEXN (QCLot: 3192660)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	88.7	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	89.3	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	77.7	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	76.6	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	82.5	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	81.3	62	138	
EP231: Perfluorinated Compounds (QCLot: 3197438)									
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	112	54	146	
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	121	54	134	
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	124	56	138	

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: 3200308)									



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: 3200308) - continued								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	98.4	79	121
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	103	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	98.5	83	117
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.6	85	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	83	117
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	89.0	76	118
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3193041)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	109	77	115
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3193599)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	103	59	129
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	97.6	71	131
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	99.0	62	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3194553)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	107	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3193599)								
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	95.8	58.9	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	97.4	73.9	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
		50	µg/L	----	1500 µg/L	106	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3194553)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	110	75	127
EP080: BTEXN (QCLot: 3194553)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	86.8	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	112	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	109	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	112	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	SpikeRecovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High



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: 3201217)							
ES1326161-001	LR_MW03_0.2	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: Zinc	7440-66-6	125 mg/kg	104	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3201218)							
ES1326161-001	LR_MW03_0.2	EG035T: Mercury	7439-97-6	5 mg/kg	83.5	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3192672)							
ES1326113-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	94.5	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3192659)							
ES1326113-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	72.5	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	81.8	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3192659)							
ES1326113-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	83.3	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3192743)							
ES1326251-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	73.7	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	76.1	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	69.7	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	82.0	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	47.8	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3192743)							
ES1326251-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	74.2	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	79.8	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3192660)							
ES1326113-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	104	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3192742)							
ES1326251-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	79.2	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	80.3	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	69.8	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3192660)							
ES1326113-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	114	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3192742)							
ES1326251-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	101	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	74.7	53	131



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 Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3192742) - continued							
ES1326251-001	Anonymous	EP071: >C34 - C40 Fraction	----	2400 mg/kg	53.5	52	132
EP080: BTEXN (QCLot: 3192660)							
ES1326113-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	91.8	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	95.6	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	102	70	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	99.1	70	130
		EP080: ortho-Xylene	106-42-3	2.5 mg/kg	104	70	130
		EP080: Naphthalene	95-47-6	2.5 mg/kg	90.2	70	130
EP231: Perfluorinated Compounds (QCLot: 3197438)							
EP1309231-059	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	102	54	146
		EP231: PFOA	335-67-1	0.0025 mg/kg	124	54	134
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	121	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: 3200308)							
ES1326244-013	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	115	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	113	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	112	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	111	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	110	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	112	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	114	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3193041)							
ES1326195-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	94.0	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3194553)							
EN1304397-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	127	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3194553)							
EN1304397-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	127	70	130
EP080: BTEXN (QCLot: 3194553)							
EN1304397-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	82.0	70	130
		EP080: Toluene	108-88-3	25 µg/L	110	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	112	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: 3194553) - continued							
EN1304397-001		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	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3192659)											
ES1326113-001		Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	72.5	----	70	130	----	----
			EP074: Trichloroethene	79-01-6	2.5 mg/kg	81.8	----	70	130	----	----
EP074F: Halogenated Aromatic Compounds (QCLot: 3192659)											
ES1326113-001		Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	83.3	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3192660)											
ES1326113-001		Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	104	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3192660)											
ES1326113-001		Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	114	----	70	130	----	----
EP080: BTEXN (QCLot: 3192660)											
ES1326113-001		Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	91.8	----	70	130	----	----
			EP080: Toluene	108-88-3	2.5 mg/kg	95.6	----	70	130	----	----
			EP080: Ethylbenzene	100-41-4	2.5 mg/kg	102	----	70	130	----	----
			EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	99.1	----	70	130	----	----
				106-42-3							
			EP080: ortho-Xylene	95-47-6	2.5 mg/kg	104	----	70	130	----	----
			EP080: Naphthalene	91-20-3	2.5 mg/kg	90.2	----	70	130	----	----
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3192672)											
ES1326113-001		Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	94.5	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3192742)											
ES1326251-001		Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	79.2	----	73	137	----	----
			EP071: C15 - C28 Fraction	----	3140 mg/kg	80.3	----	53	131	----	----
			EP071: C29 - C36 Fraction	----	2860 mg/kg	69.8	----	52	132	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3192742)											
ES1326251-001		Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	101	----	73	137	----	----
			EP071: >C16 - C34 Fraction	----	4800 mg/kg	74.7	----	53	131	----	----
			EP071: >C34 - C40 Fraction	----	2400 mg/kg	53.5	----	52	132	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3192743)											



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)A: Phenolic Compounds (QCLot: 3192743) - continued											
ES1326251-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	73.7	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	76.1	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	69.7	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	82.0	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	47.8	----	20	130	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3192743)											
ES1326251-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	74.2	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	79.8	----	70	130	----	----	
EP231: Perfluorinated Compounds (QCLot: 3197438)											
EP1309231-059	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	102	----	54	146	----	----	
		EP231: PFOA	335-67-1	0.0025 mg/kg	124	----	54	134	----	----	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	121	----	56	138	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3201217)											
ES1326161-001	LR_MW03_0.2	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: Zinc	7440-66-6	125 mg/kg	104	----	70	130	----	----	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3201218)											
ES1326161-001	LR_MW03_0.2	EG035T: Mercury	7439-97-6	5 mg/kg	83.5	----	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: 3193041)											
ES1326195-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	94.0	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3194553)											
EN1304397-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	127	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3194553)											
EN1304397-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	127	----	70	130	----	----	
EP080: BTEXN (QCLot: 3194553)											
EN1304397-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	82.0	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	110	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	112	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	110	----	70	130	----	----	
					106-42-3						



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: BTEXN (QCLot: 3194553) - continued										
EN1304397-001	Anonymous	EP080: ortho-Xylene	95-47-6	25 µg/L	114	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	112	----	70	130	----	----
EG020T: Total Metals by ICP-MS (QCLot: 3200308)										
ES1326244-013	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	115	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	113	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	112	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	111	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	110	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	112	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	114	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326161	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	: LIDDELL	Date Samples Received	: 02-DEC-2013
C-O-C number	: ----	Issue Date	: 11-DEC-2013
Sampler	: RO	No. of samples received	: 4
Order number	: 0244198	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
EA002 : pH (Soils)							
Soil Glass Jar - Unpreserved (EA002) LR_MW03_0.2	27-NOV-2013	04-DEC-2013	04-DEC-2013	✓	04-DEC-2013	04-DEC-2013	✓
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103) LR_MW03_0.2, LO_MW15_2.0	27-NOV-2013	----	----	----	09-DEC-2013	11-DEC-2013	✓
EA150: Particle Sizing							
Snap Lock Bag (EA150) LR_MW03_0.2	27-NOV-2013	---	26-MAY-2014	----	06-DEC-2013	03-JUN-2014	✓
EA150: Soil Classification based on Particle Size							
Snap Lock Bag (EA150) LR_MW03_0.2	27-NOV-2013	---	26-MAY-2014	----	06-DEC-2013	03-JUN-2014	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) LR_MW03_0.2, LO_MW15_2.0	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) LR_MW03_0.2, LO_MW15_2.0	27-NOV-2013	09-DEC-2013	25-DEC-2013	✓	10-DEC-2013	25-DEC-2013	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) LR_MW03_0.2, LO_MW15_2.0	27-NOV-2013	05-DEC-2013	11-DEC-2013	✓	05-DEC-2013	14-JAN-2014	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) LR_MW03_0.2, LO_MW15_2.0	27-NOV-2013	06-DEC-2013	11-DEC-2013	✓	07-DEC-2013	15-JAN-2014	✓
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074) LR_MW03_0.2, LO_MW15_2.0	27-NOV-2013	04-DEC-2013	04-DEC-2013	✓	04-DEC-2013	04-DEC-2013	✓
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074) LR_MW03_0.2, LO_MW15_2.0	27-NOV-2013	04-DEC-2013	04-DEC-2013	✓	04-DEC-2013	04-DEC-2013	✓
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074) LR_MW03_0.2, LO_MW15_2.0	27-NOV-2013	04-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
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074) LR_MW03_0.2, LO_MW15_2.0	27-NOV-2013	04-DEC-2013	04-DEC-2013	✓	04-DEC-2013	04-DEC-2013	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074) LR_MW03_0.2, LO_MW15_2.0	27-NOV-2013	04-DEC-2013	04-DEC-2013	✓	04-DEC-2013	04-DEC-2013	✓
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074) LR_MW03_0.2, LO_MW15_2.0	27-NOV-2013	04-DEC-2013	04-DEC-2013	✓	04-DEC-2013	04-DEC-2013	✓
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved (EP074) LR_MW03_0.2, LO_MW15_2.0	27-NOV-2013	04-DEC-2013	04-DEC-2013	✓	04-DEC-2013	04-DEC-2013	✓
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074) LR_MW03_0.2, LO_MW15_2.0	27-NOV-2013	04-DEC-2013	04-DEC-2013	✓	04-DEC-2013	04-DEC-2013	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) LR_MW03_0.2, LO_MW15_2.0	27-NOV-2013	06-DEC-2013	11-DEC-2013	✓	07-DEC-2013	15-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) LR_MW03_0.2, LO_MW15_2.0	27-NOV-2013	06-DEC-2013	11-DEC-2013	✓	07-DEC-2013	15-JAN-2014	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) LR_MW03_0.2, LO_MW15_2.0	27-NOV-2013	04-DEC-2013	11-DEC-2013	✓	04-DEC-2013	11-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Soil Glass Jar - Unpreserved (EP080) LR_MW03_0.2, LO_MW15_2.0	27-NOV-2013	04-DEC-2013	11-DEC-2013	✓	04-DEC-2013	11-DEC-2013	✓
EP231: Perfluorinated Compounds							
Soil Glass Jar - Unpreserved (EP231) LO_MW15_2.0	27-NOV-2013	06-DEC-2013	26-MAY-2014	✓	07-DEC-2013	15-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_271113	27-NOV-2013	09-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_271113	27-NOV-2013	----	----	----	04-DEC-2013	25-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 Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) R01_271113	27-NOV-2013	04-DEC-2013	04-DEC-2013	✓	05-DEC-2013	14-JAN-2014	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) R01_271113	27-NOV-2013	05-DEC-2013	11-DEC-2013	✓	05-DEC-2013	11-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Amber VOC Vial - Sulfuric Acid (EP080) R01_271113	27-NOV-2013	05-DEC-2013	11-DEC-2013	✓	05-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)							
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	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	5	20.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	1	10	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	7	14.3	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	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	12	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	7	14.3	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	18	5.6	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	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	7	14.3	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	18	5.6	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	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	7	14.3	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	18	5.6	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	18	5.6	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	Reaular	Actual	Expected	Evaluation	
<i>Analytical Methods</i>							
Matrix Spikes (MS) - Continued							
Volatile Organic Compounds	EP074	1	12	8.3	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	
<i>Analytical Methods</i>							
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	18	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	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	18	5.6	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	4	25.0	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)							
Total Mercury by FIMS	EG035T	1	18	5.6	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	4	25.0	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	18	5.6	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	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)
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
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.
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)
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
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)
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.



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	Anonymous	Zinc	7440-66-6	26.7 %	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.

- 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	: ES1326162		
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 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	: LIDDELL		
Sampler	: RIZA		

Dates

Date Samples Received	: 02-DEC-2013	Issue Date	: 04-DEC-2013 12:12
Client Requested Due Date	: 09-DEC-2013	Scheduled Reporting Date	: 09-DEC-2013

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 4.1°C - Ice present
No. of coolers/boxes	: HARD	No. of samples received	: 12
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
- **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 GC/MS	SOIL - S-27 TRH/BTEX/PAH/Phenols/8Metals
ES1326162-001	28-NOV-2013 15:00	LQ_MW05-0.7		✓	✓
ES1326162-002	27-NOV-2013 15:00	LQ_SB02-2.0	✓		
ES1326162-003	27-NOV-2013 15:00	LL_SB05-3.0	✓		
ES1326162-004	27-NOV-2013 15:00	LL_MW04-0.5	✓		
ES1326162-005	27-NOV-2013 15:00	LL_SB18-0.5	✓		
ES1326162-006	27-NOV-2013 15:00	LL_SB02-0.5	✓		
ES1326162-007	27-NOV-2013 15:00	LL_SB19-0.5	✓		
ES1326162-008	27-NOV-2013 15:00	LL_MW06-0.5	✓		
ES1326162-009	27-NOV-2013 15:00	LL_SB08-3.0	✓		
ES1326162-010	27-NOV-2013 15:00	LL_SB03-0.5	✓		
ES1326162-011	27-NOV-2013 15:00	LL_SB13-1.5	✓		
ES1326162-012	27-NOV-2013 15:00	LL_MW09-0.5	✓		

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 : ES1326162 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 : RIZA Site : LIDDELL 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 : 02-DEC-2013 Issue Date : 09-DEC-2013 No. of samples received : 12 No. of samples analysed : 1
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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>
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Raymond Commodor	Instrument Chemist	Sydney 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

LQ_MW05-0.7

Client sampling date / time

28-NOV-2013 15:00

Compound	CAS Number	LOR	Unit	ES1326162-001	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

EA055: Moisture Content

Moisture Content (dried @ 103°C)	---	1.0	%	16.3	---	---	---	---
----------------------------------	-----	-----	---	------	-----	-----	-----	-----

EG005T: Total Metals by ICP-AES

Arsenic	7440-38-2	5	mg/kg	14	---	---	---	---
Cadmium	7440-43-9	1	mg/kg	<1	---	---	---	---
Chromium	7440-47-3	2	mg/kg	12	---	---	---	---
Copper	7440-50-8	5	mg/kg	13	---	---	---	---
Lead	7439-92-1	5	mg/kg	16	---	---	---	---
Nickel	7440-02-0	2	mg/kg	20	---	---	---	---
Zinc	7440-66-6	5	mg/kg	66	---	---	---	---

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	---	---	---	---
---------------------------------	-----	-----	-------	------	-----	-----	-----	-----

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	---	---	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

LQ_MW05-0.7

Client sampling date / time

28-NOV-2013 15:00

Compound	CAS Number	LOR	Unit	ES1326162-001				
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	----	----	----	----
^ 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	----	----	----	----
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	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	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	----	----	----	----



Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Client sample ID

LQ_MW05-0.7

Client sampling date / time

28-NOV-2013 15:00

Compound	CAS Number	LOR	Unit	ES1326162-001	----	----	----	----
EP080: BTEXN - Continued								
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	----	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	63.5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	84.0	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	99.7	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	100	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	106	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	95.8	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	100	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	116	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	102	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	111	----	----	----	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
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	: ES1326162	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	: LIDDELL	Date Samples Received	: 02-DEC-2013
C-O-C number	: ----	Issue Date	: 09-DEC-2013
Sampler	: RIZA	No. of samples received	: 12
Order number	: 0224198	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.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Raymond Commodor	Instrument Chemist	Sydney Inorganics



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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: 3196028)									
ES1326153-003	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	25.2	24.5	2.7	0% - 20%
ES1326162-001	LQ_MW05-0.7	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	16.3	16.3	0.0	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 3197549)									
ES1326153-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	20	23	10.9	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	10	10	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	11	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	9	8	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	14	14	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	34	32	8.3	No Limit
ES1326153-011	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	20	18	7.2	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	3	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	9	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	11	11	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	15	15	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3197550)									
ES1326153-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326153-011	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3193827)									
ES1326153-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326153-011	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3193868)									
ES1326153-001	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: 3193868) - continued									
ES1326153-001	Anonymous	EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1326153-011	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
		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: 3193868)									
ES1326153-001	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		
ES1326153-011	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



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: 3193868) - continued									
ES1326153-011	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: 3193867)									
ES1326153-001	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
ES1326153-011	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: 3195444)									
ES1326489-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1326489-004	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	29	28	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3193867)									
ES1326153-001	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
ES1326153-011	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: 3195444)									
ES1326489-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1326489-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	49	48	3.1	No Limit
EP080: BTEXN (QC Lot: 3195444)									
ES1326489-001	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



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: 3197549)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	114	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	112	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	109	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	112	81	133	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3197550)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	83.0	66	112	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3193827)									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	102	57.4	117	
EP075(SIM)A: Phenolic Compounds (QCLot: 3193868)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	86.8	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	93.7	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	93.1	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	97.4	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	80.6	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	85.0	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	91.8	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	95.3	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	89.7	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	87.5	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	91.6	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	18.2	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3193868)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	98.6	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	105	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	99.9	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	105	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	102	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	106	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	94.7	73	121	



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: 3193868) - continued								
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	99.6	81	123
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	85.4	70	118
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	96.4	77	123
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	94.6	76	122
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	87.9	71	113
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	86.0	71.7	113
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	87.1	72.4	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3193867)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	120	71	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	114	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	91.6	64	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3195444)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	96.4	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3193867)								
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	108	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
		50	mg/kg	----	150 mg/kg	71.2	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3195444)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	99.4	68.4	128
EP080: BTEXN (QCLot: 3195444)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	105	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	109	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	105	60	120
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	113	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	113	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: 3197549)							
ES1326153-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	113	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
EG005T: Total Metals by ICP-AES (QCLot: 3197549) - continued							
ES1326153-001	Anonymous	EG005T: Cadmium	7440-43-9	50 mg/kg	105	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	102	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	109	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	106	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	102	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	104	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3197550)							
ES1326153-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	92.6	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3193827)							
ES1326153-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	107	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3193868)							
ES1326153-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	75.9	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	82.6	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	79.2	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	80.6	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	48.5	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3193868)							
ES1326153-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	85.4	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	91.1	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3193867)							
ES1326153-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	82.9	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	82.0	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	71.9	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3195444)							
ES1326489-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	90.9	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3193867)							
ES1326153-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	104	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.5	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	55.6	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3195444)							
ES1326489-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	91.4	70	130
EP080: BTEXN (QCLot: 3195444)							
ES1326489-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	84.7	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	93.0	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	91.0	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: 3195444) - continued							
ES1326489-001	Anonymous	EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	90.0	70	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	94.4	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	98.9	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 Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3193827)										
ES1326153-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	107	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3193867)										
ES1326153-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	82.9	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	82.0	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	71.9	----	52	132	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3193867)										
ES1326153-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	104	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.5	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	55.6	----	52	132	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3193868)										
ES1326153-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	75.9	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	82.6	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	79.2	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	80.6	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	48.5	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3193868)										
ES1326153-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	85.4	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	91.1	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3195444)										
ES1326489-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	90.9	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3195444)										
ES1326489-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	91.4	----	70	130	----	----
EP080: BTEXN (QCLot: 3195444)										
ES1326489-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	84.7	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	93.0	----	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
EP080: BTEXN (QCLot: 3195444) - continued										
ES1326489-001	Anonymous	EP080: Ethylbenzene	100-41-4	2.5 mg/kg	91.0	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	90.0	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	94.4	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	98.9	----	70	130	----	----
EG005T: Total Metals by ICP-AES (QCLot: 3197549)										
ES1326153-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	113	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	102	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	109	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	106	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	102	----	70	130	----	----
EG005T: Zinc	7440-66-6	125 mg/kg	104	----	70	130	----	----		
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3197550)										
ES1326153-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	92.6	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326162	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	: LIDDELL	Date Samples Received	: 02-DEC-2013
C-O-C number	: ----	Issue Date	: 09-DEC-2013
Sampler	: RIZA	No. of samples received	: 12
Order number	: 0224198	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) LQ_MW05-0.7	28-NOV-2013	----	----	----	05-DEC-2013	12-DEC-2013	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) LQ_MW05-0.7	28-NOV-2013	06-DEC-2013	27-MAY-2014	✓	06-DEC-2013	27-MAY-2014	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) LQ_MW05-0.7	28-NOV-2013	06-DEC-2013	26-DEC-2013	✓	09-DEC-2013	26-DEC-2013	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) LQ_MW05-0.7	28-NOV-2013	06-DEC-2013	12-DEC-2013	✓	06-DEC-2013	15-JAN-2014	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) LQ_MW05-0.7	28-NOV-2013	07-DEC-2013	12-DEC-2013	✓	07-DEC-2013	16-JAN-2014	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) LQ_MW05-0.7	28-NOV-2013	07-DEC-2013	12-DEC-2013	✓	07-DEC-2013	16-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) LQ_MW05-0.7	28-NOV-2013	07-DEC-2013	12-DEC-2013	✓	07-DEC-2013	16-JAN-2014	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) LQ_MW05-0.7	28-NOV-2013	05-DEC-2013	12-DEC-2013	✓	05-DEC-2013	12-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Soil Glass Jar - Unpreserved (EP080) LQ_MW05-0.7	28-NOV-2013	05-DEC-2013	12-DEC-2013	✓	05-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)							
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	14	14.3	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	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)							
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	14	7.1	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	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)							
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	14	7.1	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	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
Polychlorinated Biphenyls (PCB)	EP066	1	14	7.1	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	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
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)
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

- 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.
-



CHAIN OF CUSTODY

ALS Laboratory
Phone No: 9

180-1459 7110 Hamilton Road, Sydney NSW 1513
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Tel: 02 950 8200 Fax: 02 950 8201
180-1459 7110 Hamilton Road, Sydney NSW 1513
Tel: 02 950 8200 Fax: 02 950 8201

CLIENT: **ERM**

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

FOR LABORATORY USE ONLY (Circle)

OFFICE: **SYDNEY**

PROJECT: **SYDNEY**

Custody Seal Intact? Yes No NA

ORDER NUMBER: **0224198**

ALS QUOTE NO: **SY98113**

Fees for / Issues fee blocks present upon receipt? Yes No NA

PROJECT MANAGER: **A.S. FERRY**

SITE: **BAYSWATER / LIDDELL**

Random Sample Temperature on Receipt: Yes No NA

SAMPLER: **A. Morris**

CONTACT PH: **0434 819 819**

Other comment:

COC enabled to ALS? (YES/NO)

EDD FORMAT (for default):

RECEIVED BY: **2008**

EMAIL REPORTS TO (will default to ERM if no other addresses are listed):

ADDRESS: **MARIS & SYDNEY**

RECEIVED BY: **29/11/08**

EMAIL INVOICE TO (will default to PM if no other addresses are listed):

ADDRESS: **sydney.morris@erm.com**

DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)	CONTAINER INFORMATION	ANALYSIS REQUIRED INCLUDING SURSES (Nil. Some Codes must be listed to attract scale price)	Additional Information
L	LB_S015	SOIL	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B, Mo, Ti, Se)	Environmental Division Sydney Work Order ES1326237
2	LB_S016		S-24 TRH(C6-C40)IBYTEXN, PAH, Phenols	
3	LB_SV17		VOC Target Scan	
4	LB_SV18		PCB	
5	LB_SV19		pH (1:5)	
6	LB_SV20		Exchangeable cations (EDC07)	
7	LB_SV21		PFOS/PFOA	
8	LB_SV22		Asbestos (absence/presence)	
9	LB_SV23		Particle Shain to 75µm (Sieve)	
10	LB_SV24		Organic Matter plus Total Organic Carbon (EP004)	
11	LB_SV25			
12	LB_SV26			

Environmental Division
Sydney
Work Order
ES1326237



Telephone : + 61-2-8784 8555

Subject / Forward Lab / Split WO
Lab / Analysis: **News caSha / Asbestos**
Organised By / Date:
Relinquished By / Date:

WO No: _____
Attach By PO / Internal Sheet: _____

Water Contaminant Codes: P = Uncontaminated Plastic; N = Nitrite Preserved Plastic; GFC = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Uncontaminated; AF = Air-tight Uncontaminated Plastic; V = VOA Volatil Preserved; VU = VOA Volat Sodium Sulphate Preserved; VS = VOA Volat Sulfuric Preserved; VU-S = Sulfuric Preserved; AMU = Glass; H = HCl Preserved Plastic; HD = HCl Preserved Specimen
V = VOA Volat Preserved; VU = VOA Volat Sodium Sulphate Preserved; VS = VOA Volat Sulfuric Preserved; VU-S = Sulfuric Preserved; AMU = Glass; H = HCl Preserved Plastic; HD = HCl Preserved Specimen
Z = Zinc Acetate Preserved; B = BTA Preserved; BTA-S = Strich; BTA-S = Strich; BTA-S = Strich; BTA-S = Strich



CHAIN OF CUSTODY

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Person Use

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Denver, CO 80231
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www.als-lab.com

CLIENT:

ESM

TURKAROUND REQUIREMENTS:

Standard TAT (last due date)

FOR LABORATORY USE ONLY (Circle)

Yes No N/A

OFFICE:

LABORATORY

(Standard TAT may be longer for some tests e.g. Ultra Trace Organics)

Non Standard or urgent TAT (last due date)

Custody Seal Intact?

Yes No N/A

PROJECT:

LABORATORY

ALS QUOTE NO.: SY779413

Freeze / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Yes No N/A

ORDER NUMBER:

D224198

SITE: BRYNMAWR / LIDELL

RELINQUISHED BY: [Signature]

RELINQUISHED BY: [Signature]

DATE/TIME:

PROJECT MANAGER:

J. Ferns

CONTACT PH: [Blank]

RELINQUISHED BY: [Signature]

RELINQUISHED BY: [Signature]

DATE/TIME:

SAMPLER:

A. Morris

SAMPLER MOBILE: D-34-1814-1E

RELINQUISHED BY: [Signature]

RELINQUISHED BY: [Signature]

DATE/TIME:

COC emailed to ALS? (Yes / No)

Yes / No

END FORMAT (or default):

DATE/TIME:

DATE/TIME:

DATE/TIME:

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

Anders.Morris@esm.com

DATE/TIME:

DATE/TIME:

DATE/TIME:

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

[Blank]

DATE/TIME:

DATE/TIME:

DATE/TIME:

COMMENT/SPECIAL HANDLING/STORAGE OR DISPOSAL:

[Blank]

DATE/TIME:

DATE/TIME:

DATE/TIME:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	CONTAINER INFORMATION TYPE & PRESERVATIVE (codes below)	TOTAL CONTAINERS	ANALYSIS REQUIRED (including suites (AU), Suite Codes must be typed to attract suite price) When Metals are required, specify total (unfiltered bottle required) or Dissolved (filtered bottle 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, B, Mo, Ti, Se)	S-24 TRH (C6- C40) BTEXN, PAH, Phenols	VOC Target Scan	PCB	pH (±.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, analytical or samples requiring specific GC analysis etc.					
	LB-SU27-0.0	28-11-13	soil	1 Plastic bag	1																		
	14 LB-SU28-0.0																						
	15 LB-SU29-0.0																						
	16 LB-SU30-0.0																						
	17 LB-SU31-0.0																						
	18 LB-SU32-0.0																						
	19 LB-SU33-0.0																						
	20 LB-SU34-0.0																						
	21 LB-SU35-0.0																						
	22 LB-SU36-0.0																						
	23 LB-SU37-0.0																						

Water Condenser Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; Q = Sodium Hydroxide Preserved Plastic; AC = Amber Glass Unpreserved Plastic; AU = Autoclave Unpreserved Plastic; V = Vial Vial NCI Preserved; VB = Vial Vial Sealed; B = Biotin Preserved Plastic; NV = Nitric Preserved Plastic; NS = Nitric Preserved Plastic; SP = Sealed Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; AS = Plastic Ison for Acid Sulphate Salts; B = Unpreserved Bin.

ALST Environmental

CHAIN OF CUSTODY

ALST Laboratory:
please tick

LABORATORY 21 Burma Road Preservac
Ph: 06 85270000 E: info@alst.com.au
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LABORATORY 68 Korry Street, Wollongong NSW 2500
Ph: 02 4220 3123 E: preservac@alst.com.au

CLIENT: ERM TURNOURD REQUIREMENTS: Standard TAT (last due date)
 Non Standard or urgent TAT (last due date)
OFFICE: Sydney (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)

PROJECT: System Upgrade Symphony ALS QUOTE NO.: SY 294/13
ORDER NUMBER: 0224/198 CONTACT PH: LIDELL
PROJECT MANAGER: Joe Penning SAMPLER MOBILE: 09 34181414

SAMPLER: Angus's friends RELINQUISHED BY: [Signature]
COC emailed to ALST? (YES / NO) YES EDD FORMAT (or default): Andrew Morris @ erm.com
Email Reports to (will default to PM if no other addresses are listed): Andrew Morris @ erm.com DATE/TIME: [Signature]

Email Invoice to (will default to PM if no other addresses are listed): Angus's friends DATE/TIME: [Signature]
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: preferred symphony mac gendel@erm.com

FOR LABORATORY USE ONLY (Check)

Quantity/Scale: YES NO
Cooler/Refrigerated/Other preservation: YES NO
Random Sample Temperature on Receipt: YES NO
Other comments: YES NO

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	TOTAL CONTAINERS (refer to)	ANALYSIS REQUIRED (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)	DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME	Additional Information
36	LB-SQ13-0.0	29-11-13	Soil	Plastic Bag	1	X					
37	LB-SQ14-0.0				1						
38	LB-SQ38-0.0				1						
39	LB-SQ39-0.0				1						
40	LB-SQ40-0.0				1						
41	LB-SQ41-0.0				1						
42	LB-SQ42-0.0				1						
43	LB-SQ43-0.0				1						
44	LB-SQ44-0.0				1						
45	LB-SQ45-0.0				1						
46	LB-SQ46-0.0				1						
TOTAL					11						

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Air-tight Unpreserved Plastic; V = VOA Vial (HCl Preserved); VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulphuric Preserved; AV = Air-tight Unpreserved Vial SG = Sulphuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: ES1326237		
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	: 0224198	Quote number	: ES2013ENVRES0369 (SY/794/13)
C-O-C number	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
Sampler	: AM		

Dates

Date Samples Received	: 29-NOV-2013	Issue Date	: 09-DEC-2013 15:33
Client Requested Due Date	: 09-DEC-2013	Scheduled Reporting Date	: 09-DEC-2013

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 15.3'C SYD - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 46
Security Seal	: Intact.	No. of samples analysed	: 0

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 ASET**
- **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)
ES1326237-001	28-NOV-2013 15:00	LB_SV15	✓
ES1326237-002	28-NOV-2013 15:00	LB_SV16	✓
ES1326237-003	28-NOV-2013 15:00	LB_SV17	✓
ES1326237-004	28-NOV-2013 15:00	LB_SV18	✓
ES1326237-005	28-NOV-2013 15:00	LB_SV19	✓
ES1326237-006	28-NOV-2013 15:00	LB_SV20	✓
ES1326237-007	28-NOV-2013 15:00	LB_SV21	✓
ES1326237-008	28-NOV-2013 15:00	LB_SV22	✓
ES1326237-009	28-NOV-2013 15:00	LB_SV23	✓
ES1326237-010	28-NOV-2013 15:00	LB_SV24	✓
ES1326237-011	28-NOV-2013 15:00	LB_SV25	✓
ES1326237-012	28-NOV-2013 15:00	LB_SV26	✓
ES1326237-013	28-NOV-2013 15:00	LB_SV27_0.0	✓
ES1326237-014	28-NOV-2013 15:00	LB_SV28_0.0	✓
ES1326237-015	28-NOV-2013 15:00	LB_SV29_0.0	✓
ES1326237-016	28-NOV-2013 15:00	LB_SV30_0.0	✓
ES1326237-017	28-NOV-2013 15:00	LB_SV31_0.0	✓
ES1326237-018	28-NOV-2013 15:00	LB_SV32_0.0	✓
ES1326237-019	28-NOV-2013 15:00	LB_SV33_0.0	✓
ES1326237-020	28-NOV-2013 15:00	LB_SV34_0.0	✓
ES1326237-021	28-NOV-2013 15:00	LB_SV35_0.0	✓
ES1326237-022	28-NOV-2013 15:00	LB_SV36_0.0	✓
ES1326237-023	28-NOV-2013 15:00	LB_SV37_0.0	✓
ES1326237-024	29-NOV-2013 15:00	LB_SV01_0.0	✓
ES1326237-025	29-NOV-2013 15:00	LB_SV02_0.0	✓
ES1326237-026	29-NOV-2013 15:00	LB_SV03_0.0	✓
ES1326237-027	29-NOV-2013 15:00	LB_SV04_0.0	✓
ES1326237-028	29-NOV-2013 15:00	LB_SV05_0.0	✓
ES1326237-029	29-NOV-2013 15:00	LB_SV06_0.0	✓
ES1326237-030	29-NOV-2013 15:00	LB_SV07_0.0	✓
ES1326237-031	29-NOV-2013 15:00	LB_SV08_0.0	✓
ES1326237-032	29-NOV-2013 15:00	LB_SV09_0.0	✓
ES1326237-033	29-NOV-2013 15:00	LB_SV10_0.0	✓
ES1326237-034	29-NOV-2013 15:00	LB_SV11_0.0	✓
ES1326237-035	29-NOV-2013 15:00	LB_SV12_0.0	✓



SOIL - ASB-SOL (Subcontracted)
Asbestos - Count (Solid)

ES1326237-036	29-NOV-2013 15:00	LB_SV13_0.0	✓
ES1326237-037	29-NOV-2013 15:00	LB_SV14_0.0	✓
ES1326237-038	29-NOV-2013 15:00	LB_SV38_0.0	✓
ES1326237-039	29-NOV-2013 15:00	LB_SV39_0.0	✓
ES1326237-040	29-NOV-2013 15:00	LB_SV40_0.0	✓
ES1326237-041	29-NOV-2013 15:00	LB_SV41_0.0	✓
ES1326237-042	29-NOV-2013 15:00	LB_SV42_0.0	✓
ES1326237-043	29-NOV-2013 15:00	LB_SV43_0.0	✓
ES1326237-044	29-NOV-2013 15:00	LB_SV44_0.0	✓
ES1326237-045	29-NOV-2013 15:00	LB_SV45_0.0	✓
ES1326237-046	29-NOV-2013 15:00	LB_SV46_0.0	✓

Proactive Holding Time Report

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

Requested Deliverables

MR ANDREW MORRIS

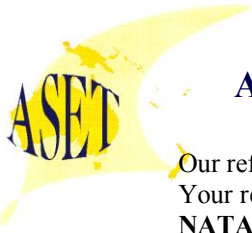
- *AU Certificate of Analysis - NATA (COA) Email andrew.morris@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email andrew.morris@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email andrew.morris@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)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



Our ref : ASET36449/ 39629 / 1 - 46

Your ref : ES1326237

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 forty six samples, forwarded by Australian Laboratory Services Pty Ltd on 6 December 2013, for analysis for asbestos.

1.Introduction: Forty six 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. ASET36449 / 39629 / 1. ES1326237 - LB-SV15.**

Approx dimensions 7.8 cm x 7.5 cm x 7.4 cm

The sample consisted of a mixture of soil, stones, plant matter, fibres[^], fragments of cement*, plaster, glass, cement and debris.

Chrysotile[^]* asbestos and Amosite[^]* asbestos detected.

Sample No. 2. ASET36449 / 39629 / 2. ES1326237 - LB-SV16.

Approx dimensions 8.4 cm x 7.5 cm x 6.9 cm

The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster, glass and debris.

No asbestos detected.

Sample No. 3. ASET36449 / 39629 / 3. ES1326237 - LB-SV17.

Approx dimensions 8.2 cm x 7.6 cm x 7.4 cm

The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster, cement and brick.

No asbestos detected.

Sample No. 4. ASET36449 / 39629 / 4. ES1326237 - LB-SV18.

Approx dimensions 9.4 cm x 7.8 cm x 7.6 cm

The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster, glass and cement.

No asbestos detected.

Sample No. 5. ASET36449 / 39629 / 5. ES1326237 - LB-SV19.

Approx dimensions 8.4 cm x 8.3 cm x 7.6 cm

The sample consisted of a mixture of soil, stones, plant matter, fibres[^], fragments of plaster, cement and corroded metal.

Chrysotile[^] asbestos and Amosite[^] asbestos detected.

Sample No. 6. ASET36449 / 39629 / 6. ES1326237 - LB-SV20.

Approx dimensions 8.3 cm x 8.1 cm x 7.7 cm

The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster, glass, cement, corroded metal and debris.

No asbestos detected.

Sample No. 7. ASET36449 / 39629 / 7. ES1326237 - LB-SV21.

Approx dimensions 8.4 cm x 8.1 cm x 7.6 cm

The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster, glass, corroded metal and debris.

No asbestos detected.

Sample No. 8. ASET36449 / 39629 / 8. ES1326237 - LB-SV22.

Approx dimensions 8.4 cm x 8.2 cm x 7.4 cm

The sample consisted of a mixture of soil, stones, plant matter, fibres[^], fragments of plaster, cement and corroded metal.

Chrysotile[^] asbestos and Amosite[^] asbestos detected.

Sample No. 9. ASET36449 / 39629 / 9. ES1326237 - LB-SV23.

Approx dimensions 8.6 cm x 8.1 cm x 7.7 cm

The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster, cement and shale.

No asbestos detected.

Sample No. 10. ASET36449 / 39629 / 10. ES1326237 - LB-SV24.

Approx dimensions 8.4 cm x 8.1 cm x 7.5 cm

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, glass and shale.

No asbestos detected.

Sample No. 11. ASET36449 / 39629 / 11. ES1326237 - LB-SV25.

Approx dimensions 8.6 cm x 8.1 cm x 7.5 cm

The sample consisted of a mixture of clayish soil, stones, plant matter, fibres[^], fragments of plaster and shale.

Chrysotile[^] asbestos and Amosite[^] asbestos detected.

Sample No. 12. ASET36449 / 39629 / 12. ES1326237 - LB-SV26.

Approx dimensions 7.9 cm x 7.6 cm x 6.4 cm

The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster and glass.

No asbestos detected.

Sample No. 13. ASET36449 / 39629 / 13. ES1326237 - LB-SV27 - 0.0.

Approx dimensions 8.4 cm x 7.8 cm x 7.5 cm

The sample consisted of a mixture of clayish soil, stones and plant matter.

No asbestos detected.

Sample No. 14. ASET36449 / 39629 / 14. ES1326237 - LB-SV28 - 0.0.

Approx dimensions 8.3 cm x 7.7 cm x 7.5 cm

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster and shale.

No asbestos detected.

Sample No. 15. ASET36449 / 39629 / 15. ES1326237 - LB-SV29 - 0.0.

Approx dimensions 8.2 cm x 7.7 cm x 7.6 cm

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster.

No asbestos detected.

Sample No. 16. ASET36449 / 39629 / 16. ES1326237 - LB-SV30 - 0.0.

Approx dimensions 8.4 cm x 7.7 cm x 7.5 cm

The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster and glass.

No asbestos detected.

Sample No. 17. ASET36449 / 39629 / 17. ES1326237 - LB-SV31 - 0.0.

Approx dimensions 8.3 cm x 7.8 cm x 7.5 cm

The sample consisted of a mixture of soil, stones, plant matter, fibres[^], fragments of plaster and glass.

Amosite asbestos detected.

Sample No. 18. ASET36449 / 39629 / 18. ES1326237 - LB-SV32 - 0.0.

Approx dimensions 8.1 cm x 7.9 cm x 7.6 cm

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of shale.

No asbestos detected.

Sample No. 19. ASET36449 / 39629 / 19. ES1326237 - LB-SV33 - 0.0.

Approx dimensions 8.4 cm x 7.8 cm x 7.4 cm

The sample consisted of a mixture of clayish soil, stones, plant matter and fibres[^].

Chrysotile[^] asbestos detected.

Sample No. 20. ASET36449 / 39629 / 20. ES1326237 - LB-SV34 - 0.0.

Approx dimensions 8.1 cm x 7.8 cm x 7.4 cm

The sample consisted of a mixture of clayish soil, stones and plant matter.

No asbestos detected.

Sample No. 21. ASET36449 / 39629 / 21. ES1326237 - LB-SV35 - 0.0.

Approx dimensions 8.6 cm x 7.5 cm x 7.2 cm

The sample consisted of a mixture of clayish soil, stones, plant matter, fibres[^] and fragments of shale.

Amosite asbestos detected.

Sample No. 22. ASET36449 / 39629 / 22. ES1326237 - LB-SV36 - 0.0.

Approx dimensions 8.2 cm x 7.7 cm x 7.5 cm

The sample consisted of a mixture of clayish soil, stones, plant matter, fibres[^] and fragments of shale.

Chrysotile[^] asbestos and Amosite[^] asbestos detected.



Sample No. 23. ASET36449 / 39629 / 23. ES1326237 - LB-SV37 - 0.0.
Approx dimensions 8.2 cm x 7.8 cm x 7.5 cm
The sample consisted of a mixture of soil, stones, plant matter and fragments of shale.
No asbestos detected.

Sample No. 24. ASET36449 / 39629 / 24. ES1326237 - LB-SV01 - 0.0.
Approx dimensions 8.4 cm x 7.6 cm x 7.5 cm
The sample consisted of a mixture of soil, stones, plant matter, fragments of glass and debris.
No asbestos detected.

Sample No. 25. ASET36449 / 39629 / 25. ES1326237 - LB-SV02 - 0.0.
Approx dimensions 9.2 cm x 8.5 cm x 7.6 cm
The sample consisted of a mixture of soil, stones, plant matter, fragments of glass and debris.
No asbestos detected.

Sample No. 26. ASET36449 / 39629 / 26. ES1326237 - LB-SV03 - 0.0.
Approx dimensions 8.4 cm x 7.9 cm x 7.2 cm
The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster, glass and debris.
No asbestos detected.

Sample No. 27. ASET36449 / 39629 / 27. ES1326237 - LB-SV04 - 0.0.
Approx dimensions 8.7 cm x 8.6 cm x 8.5 cm
The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster, glass, brick and debris.
No asbestos detected.

Sample No. 28. ASET36449 / 39629 / 28. ES1326237 - LB-SV05 - 0.0.
Approx dimensions 9.1 cm x 8.4 cm x 7.5 cm
The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, glass and debris.
No asbestos detected.

Sample No. 29. ASET36449 / 39629 / 29. ES1326237 - LB-SV06 - 0.0.
Approx dimensions 8.8 cm x 8.5 cm x 8.4 cm
The sample consisted of a mixture of clayish soil, stones, plant matter, fibres[^], fragments of shale and debris.
Amosite[^] asbestos detected.

Sample No. 30. ASET36449 / 39629 / 30. ES1326237 - LB-SV07 - 0.0.
Approx dimensions 9.1 cm x 8.6 cm x 7.6 cm
The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of glass, shale and debris.
No asbestos detected.

Sample No. 31. ASET36449 / 39629 / 31. ES1326237 - LB-SV08 - 0.0.
Approx dimensions 8.7 cm x 8.6 cm x 7.6 cm
The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of glass, shale and debris.
No asbestos detected.

Sample No. 32. ASET36449 / 39629 / 32. ES1326237 - LB-SV09 - 0.0.

Approx dimensions 9.2 cm x 8.6 cm x 7.5 cm

The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster, glass, paint flakes and debris.

No asbestos detected.

Sample No. 33. ASET36449/ 39629/ 33. ES1326237 - LB-SV10 - 0.0.

Approx dimensions 9.2 cm x 8.5 cm x 7.5 cm

The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster, glass, corroded metal, shale and debris.

No asbestos detected.

Sample No. 34. ASET36449 / 39629 / 34. ES1326237 - LB-SV11 - 0.0.

Approx dimensions 8.7 cm x 8.5 cm x 8.1 cm

The sample consisted of a mixture of clayish soil, stones, plant matter, fibres[^], fragments of shale and debris.

Chrysotile[^] asbestos detected.

Sample No. 35. ASET36449 / 39629 / 35. ES1326237 - LB-SV12 - 0.0.

Approx dimensions 8.9 cm x 8.7 cm x 8.4 cm

The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster, glass, shale and debris.

No asbestos detected.

Sample No. 36. ASET36449 / 39629 / 36. ES1326237 - LB-SV13 - 0.0.

Approx dimensions 9.1 cm x 8.6 cm x 7.7 cm

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, glass and shale.

No asbestos detected.

Sample No. 37. ASET36449 / 39629 / 37. ES1326237 - LB-SV14 - 0.0.

Approx dimensions 9.2 cm x 8.6 cm x 8.1 cm

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, glass and shale.

No asbestos detected.

Sample No. 38. ASET36449 / 39629 / 38. ES1326237 - LB-SV38 - 0.0.

Approx dimensions 9.1 cm x 8.5 cm x 8.4 cm

The sample consisted of a mixture of clayish soil, stones, plant matter, fibres[^], fragments of plaster, glass, shale, corroded metal and debris.

Chrysotile[^] asbestos detected.

Sample No. 39. ASET36449 / 39629 / 39. ES1326237 - LB-SV39 - 0.0.

Approx dimensions 9.5 cm x 8.6 cm x 7.8 cm

The sample consisted of a mixture of clayish soil, stones, plant matter, fibres[^] and fragments of cement.

Chrysotile[^] asbestos and Amosite[^] asbestos detected.

Sample No. 40. ASET36449 / 39629 / 40. ES1326237 - LB-SV40 - 0.0.

Approx dimensions 8.6 cm x 8.5 cm x 8.4 cm

The sample consisted of a mixture of clayish soil, stones, plant matter, fibres[^], fragments of plaster and glass.

Chrysotile[^] asbestos and Amosite[^] asbestos detected.



Sample No. 41. ASET36449 / 39629 / 41. ES1326237 - LB-SV41 - 0.0.

Approx dimensions 9.3 cm x 8.6 cm x 7.7 cm

The sample consisted of a mixture of clayish soil, stones, plant matter, fibres[^], fragments of fibre cement*, plaster and shale.

Chrysotile[^]* asbestos and Amosite* asbestos detected.

Sample No. 42. ASET36449 / 39629 / 42. ES1326237 - LB-SV42 - 0.0.

Approx dimensions 9.2 cm x 8.6 cm x 8.1 cm

The sample consisted of a mixture of clayish soil, stones, plant matter, fibres[^], fragments of plaster and brick.

Chrysotile[^] asbestos detected.

Sample No. 43. ASET36449 / 39629 / 43. ES1326237 - LB-SV43 - 0.0.

Approx dimensions 8.9 cm x 8.5 cm x 8.1 cm

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster.

No asbestos detected.

Sample No. 44. ASET36449 / 39629 / 44. ES1326237 - LB-SV44 - 0.0.

Approx dimensions 8.6 cm x 7.6 cm x 7.3 cm

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of shale.

No asbestos detected.

Sample No. 45. ASET36449 / 39629 / 45. ES1326237 - LB-SV45 - 0.0.

Approx dimensions 8.4 cm x 7.6 cm x 7.3 cm

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster.

No asbestos detected.

Sample No. 46. ASET36449 / 39629 / 46. ES1326237 - LB-SV46 - 0.0.

Approx dimensions 8.4 cm x 7.6 cm x 7.3 cm

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of fibre cement* and plaster.

Chrysotile* asbestos, Amosite* asbestos and Crocidolite* asbestos detected.

Analysed and reported by,

A handwritten signature in black ink, appearing to read "Laxman Dias", is written over a light blue grid background.

**Laxman Dias. BSc
Analyst / Approved Identifier.
Approved Signatory**



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

*** denotes asbestos in asbestos containing material in bonded form.**

denotes easily crumbling soft material containing asbestos fibres and loose asbestos fibres.



CHAIN OF CUSTODY
ALS Laboratory
Please Use >

4841 1st St., Fremont, CA 94538
Tel: 925-781-2200
Fax: 925-781-2201
www.alslaboratory.com

2017-2018
4841 1st St., Fremont, CA 94538
Tel: 925-781-2200
Fax: 925-781-2201

4841 1st St., Fremont, CA 94538
Tel: 925-781-2200
Fax: 925-781-2201

4841 1st St., Fremont, CA 94538
Tel: 925-781-2200
Fax: 925-781-2201

CLIENT: **ERM**
OFFICE: **NYMSON T**
PROJECT: Project Symphony
ORDER NUMBER: **0224198**
PROJECT MANAGER: **Joe Remy**
SAMPLER: **JOSH KOUJADY**
COC emailed to ALS? (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):

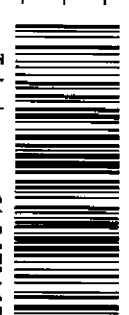
TURNOVER REQUIREMENTS: Standard TAT (last date ship) Non Standard or urgent TAT (last date ship)
ALS QUOTE NO.: **SY190413**
SITE: **BAYSWATER (LIDELL)**
CONTACT PH: _____
SAMPLER MOBILE: _____
EDD FORMAT (or default): _____
REINQUISHED BY: _____ DATE/TIME: _____
RECEIVED BY: **RONK ACS** DATE/TIME: **4-12-13 0900**

FOR LABORATORY USE ONLY (Circle)
Custody Seal Intact? Yes No N/A
Free Ice / Frozen Ice blocks present upon receipt? Yes No N/A
Random Sample Temperature on Receipt: _____
REINQUISHED BY: _____ DATE/TIME: _____
RECEIVED BY: _____ DATE/TIME: _____

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) / WATER (W)	CONTAINER INFORMATION	ANALYSIS 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) 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 OC analysis etc.
1	LO-SB02-0.1	30/11/13	SOIL	1 Jar + Bag		2	X	X	X	X	X	X	X	X	X	X	X	
2	LH-MW02-0.5					2	X	X	X	X	X	X	X	X	X	X	X	
3	LH-SB01-0.5					2	X	X	X	X	X	X	X	X	X	X	X	
4	LH-MW01-0.5					2	X	X	X	X	X	X	X	X	X	X	X	
5	LO-MW03-0.5					2	X	X	X	X	X	X	X	X	X	X	X	
6	LL-SB15-0.5					2	X	X	X	X	X	X	X	X	X	X	X	
7	LL-SB11-0.5					2	X	X	X	X	X	X	X	X	X	X	X	
8	LL-SB17-0.1					2	X	X	X	X	X	X	X	X	X	X	X	
9	LL-SB16-0.5					2	X	X	X	X	X	X	X	X	X	X	X	
10	LO-MW06-0.5					2	X	X	X	X	X	X	X	X	X	X	X	
	Received Zykan Sample																	
11	Reol-30113-2-TR																	
12	TRIPSPICE 14 28/11/13																	

Environmental Division
Sydney
Work Order
ES1326681
Telephone : + 61-2-8784 8555



Subcon / Forward Lab / Split WO
Lab / Analysis
Organized By / Date: **RONK**
Reinquired By / Date: _____

13 TSC 12 25-11-13
14 TSC 11 28/11/13
15 T-SP 12 25-11-13

Comnote / Courier: _____
WO No: **ES1326681**
Attach By PO / Internal Sheet: _____

SAMPLE RECEIPT NOTIFICATION (SRN)**Comprehensive Report****Work Order : ES1326681**

Client : ENVIRO RESOURCES MANAGEMENT
Contact : MR JOE FERRING
**Address : GRND FLOOR, 33 SAUNDERS STREET
PYRMONT NSW AUSTRALIA 2009**

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 : 0224198
C-O-C number : ----

Page : 1 of 3
Quote number : ES2013ENVRES0369 (SY/794/13)

Site : LIDDELL
Sampler : JK

QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 04-DEC-2013
Client Requested Due Date : 10-DEC-2013

Issue Date : 06-DEC-2013 16:36
Scheduled Reporting Date : 10-DEC-2013

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 : 15
No. of samples analysed : 12

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.
- Samples R01_301113_JK, TRIP SPIKE 11 and TRIP SPIKE 12 were received extra. ALS will put on hold for samples R01_301113_JK and TRIP SPIKE 12 and will analyse TPH C6-C10/ BTEX for sample TRIP SPIKE 11.
- Asbestos analysis will be subcontracted to ASET.
- **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	(On Hold) SOIL No analysis requested	SOIL - ASB-SOL (Subcontracted) Asbestos - Count (Solid)	SOIL - EP066 (solids) Polychlorinated Biphenyls by GC/MS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP231 Perfluorooctyl Acids and Sulfonates by LC/MS/MS	SOIL - S-02 & Metals (incl. Digestion)	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-24 TRH/BTEXN/PAH + Phenols
ES1326681-001	30-NOV-2013 15:00	LQ_SB02_0.1		✓	✓			✓		✓
ES1326681-002	30-NOV-2013 15:00	LH_MW02_0.5		✓				✓		✓
ES1326681-003	30-NOV-2013 15:00	LH_SB01_0.5		✓				✓		✓
ES1326681-004	30-NOV-2013 15:00	LH_MW01_0.5		✓				✓		✓
ES1326681-005	30-NOV-2013 15:00	LO_MW03_0.5		✓	✓	✓	✓	✓		✓
ES1326681-006	30-NOV-2013 15:00	LL_SB15_0.5		✓	✓			✓		✓
ES1326681-007	30-NOV-2013 15:00	LL_SB11_0.5		✓	✓			✓		✓
ES1326681-008	30-NOV-2013 15:00	LL_SB17_0.1		✓	✓			✓		✓
ES1326681-009	30-NOV-2013 15:00	LL_SB16_0.5		✓	✓			✓		✓
ES1326681-010	30-NOV-2013 15:00	LO_MW06_0.5		✓	✓	✓	✓	✓		✓
ES1326681-012	28-NOV-2013 15:00	TRIP SPIKE 11							✓	
ES1326681-013	25-NOV-2013 15:00	TSC 12	✓							
ES1326681-014	28-NOV-2013 15:00	TSC 11							✓	
ES1326681-015	25-NOV-2013 15:00	TSP 12	✓							

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) WATER No analysis requested
ES1326681-011	30-NOV-2013 15:00	ROI_301113_JK	✓

Proactive Holding Time Report

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



Requested Deliverables

MR JOE 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	: ES1326681	Page	: 1 of 14
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOE FERRING	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	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	: 0224198	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 10-DEC-2013
Sampler	: JK	No. of samples received	: 15
Site	: LIDDELL	No. of samples analysed	: 12
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.**
- **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.

<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 Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LQ_SB02_0.1	LH_MW02_0.5	LH_SB01_0.5	LH_MW01_0.5	LO_MW03_0.5
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326681-001	ES1326681-002	ES1326681-003	ES1326681-004	ES1326681-005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	12.7	17.4	22.0	15.9	17.1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	14	<5	11	11	10
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	8	12	23	13	15
Copper	7440-50-8	5	mg/kg	11	11	30	12	16
Lead	7439-92-1	5	mg/kg	15	15	22	15	14
Nickel	7440-02-0	2	mg/kg	18	12	22	46	16
Zinc	7440-66-6	5	mg/kg	63	55	90	128	54
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



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LQ_SB02_0.1	LH_MW02_0.5	LH_SB01_0.5	LH_MW01_0.5	LO_MW03_0.5
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326681-001	ES1326681-002	ES1326681-003	ES1326681-004	ES1326681-005
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

				LQ_SB02_0.1	LH_MW02_0.5	LH_SB01_0.5	LH_MW01_0.5	LO_MW03_0.5
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326681-001	ES1326681-002	ES1326681-003	ES1326681-004	ES1326681-005
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

				LQ_SB02_0.1	LH_MW02_0.5	LH_SB01_0.5	LH_MW01_0.5	LO_MW03_0.5
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326681-001	ES1326681-002	ES1326681-003	ES1326681-004	ES1326681-005
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

				LQ_SB02_0.1	LH_MW02_0.5	LH_SB01_0.5	LH_MW01_0.5	LO_MW03_0.5
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326681-001	ES1326681-002	ES1326681-003	ES1326681-004	ES1326681-005
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
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	%	63.0	----	----	----	66.4
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	----	----	84.8
Toluene-D8	2037-26-5	0.1	%	----	----	----	----	104
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	----	----	97.8
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	85.2	83.2	85.6	87.8	81.9
2-Chlorophenol-D4	93951-73-6	0.1	%	102	98.8	102	104	97.7
2,4,6-Tribromophenol	118-79-6	0.1	%	124	126	119	123	119
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	105	102	104	107	100
Anthracene-d10	1719-06-8	0.1	%	97.1	96.2	97.3	101	94.4
4-Terphenyl-d14	1718-51-0	0.1	%	91.6	89.8	90.8	95.3	87.0
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	78.2	76.2	82.7	78.2	85.5
Toluene-D8	2037-26-5	0.1	%	75.1	88.4	83.0	79.6	80.5
4-Bromofluorobenzene	460-00-4	0.1	%	87.7	85.5	86.9	84.5	87.8



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LL_SB15_0.5	LL_SB11_0.5	LL_SB17_0.1	LL_SB16_0.5	LO_MW06_0.5
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326681-006	ES1326681-007	ES1326681-008	ES1326681-009	ES1326681-010
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	22.9	23.3	22.9	23.4	22.1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	10	11	8	9	14
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	27	28	19	12	26
Copper	7440-50-8	5	mg/kg	8	6	11	<5	20
Lead	7439-92-1	5	mg/kg	13	13	13	16	30
Nickel	7440-02-0	2	mg/kg	11	12	5	3	7
Zinc	7440-66-6	5	mg/kg	21	18	18	14	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
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
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

				LL_SB15_0.5	LL_SB11_0.5	LL_SB17_0.1	LL_SB16_0.5	LO_MW06_0.5
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326681-006	ES1326681-007	ES1326681-008	ES1326681-009	ES1326681-010
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

				LL_SB15_0.5	LL_SB11_0.5	LL_SB17_0.1	LL_SB16_0.5	LO_MW06_0.5
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326681-006	ES1326681-007	ES1326681-008	ES1326681-009	ES1326681-010
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

				LL_SB15_0.5	LL_SB11_0.5	LL_SB17_0.1	LL_SB16_0.5	LO_MW06_0.5
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326681-006	ES1326681-007	ES1326681-008	ES1326681-009	ES1326681-010
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

				LL_SB15_0.5	LL_SB11_0.5	LL_SB17_0.1	LL_SB16_0.5	LO_MW06_0.5
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326681-006	ES1326681-007	ES1326681-008	ES1326681-009	ES1326681-010
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
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	%	63.9	65.8	63.7	64.2	62.8
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	----	----	72.9
Toluene-D8	2037-26-5	0.1	%	----	----	----	----	92.0
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	----	----	88.5
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	77.7	71.2	89.4	88.6	80.4
2-Chlorophenol-D4	93951-73-6	0.1	%	92.5	88.6	106	107	94.0
2,4,6-Tribromophenol	118-79-6	0.1	%	116	102	121	105	115
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	95.9	94.6	109	106	97.4
Anthracene-d10	1719-06-8	0.1	%	87.4	85.1	97.5	94.0	90.4
4-Terphenyl-d14	1718-51-0	0.1	%	83.2	82.9	95.1	88.1	84.9
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	84.5	85.4	72.9	73.7	83.8
Toluene-D8	2037-26-5	0.1	%	81.8	71.6	85.2	76.4	77.4
4-Bromofluorobenzene	460-00-4	0.1	%	84.2	81.3	84.6	75.7	77.8



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				TRIP SPIKE 11	TSC 11	---	---	---
				28-NOV-2013 15:00	28-NOV-2013 15:00	---	---	---
				ES1326681-012	ES1326681-014	---	---	---
Compound	CAS Number	LOR	Unit					
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	---	10	mg/kg	74	101	---	---	---
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	87	116	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	52	72	---	---	---
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	0.6	0.8	---	---	---
Toluene	108-88-3	0.5	mg/kg	17.5	22.9	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	2.1	2.6	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	10.5	12.7	---	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	4.1	5.1	---	---	---
^ Sum of BTEX	---	0.2	mg/kg	34.8	44.1	---	---	---
^ Total Xylenes	1330-20-7	0.5	mg/kg	14.6	17.8	---	---	---
Naphthalene	91-20-3	1	mg/kg	<1	<1	---	---	---
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	75.3	72.1	---	---	---
Toluene-D8	2037-26-5	0.1	%	83.5	77.1	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	85.0	82.4	---	---	---



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	: ES1326681	Page	: 1 of 15
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOE FERRING	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	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	: LIDDELL	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 10-DEC-2013
Sampler	: JK	No. of samples received	: 15
Order number	: 0224198	No. of samples analysed	: 12
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>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic 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 (%)
EA055: Moisture Content (QC Lot: 3201223)									
ES1326527-028	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	5.8	6.1	5.8	No Limit
ES1326527-042	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	2.2	2.1	6.6	No Limit
EA055: Moisture Content (QC Lot: 3201224)									
ES1326681-008	LL_SB17_0.1	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	22.9	22.4	2.4	0% - 20%
ES1326683-009	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	10.6	10.4	2.5	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 3200324)									
ES1326681-001	LQ_SB02_0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	12	34.9	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	18	30	46.0	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	14	15	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	11	15	36.4	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	15	21	30.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	63	81	24.5	0% - 50%
ES1326683-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	19	21	13.8	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	8	10	21.6	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	7	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	14	15	11.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	15	57.2	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	39	45	14.1	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3200325)									
ES1326681-001	LQ_SB02_0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326683-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3199165)									
ES1326381-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326683-003	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3199459)									
ES1326681-005	LO_MW03_0.5	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: 3199459) - continued									
ES1326681-005	LO_MW03_0.5	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	LO_MW03_0.5	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	LO_MW03_0.5	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3199459)									
ES1326681-005	LO_MW03_0.5	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	LO_MW03_0.5	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: 3199459) - continued									
ES1326681-005	LO_MW03_0.5	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	LO_MW03_0.5	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: 3199459)									
ES1326681-005	LO_MW03_0.5	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	LO_MW03_0.5	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3199162)									
ES1326681-001	LQ_SB02_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
ES1326683-001	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



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: 3199162) - continued									
ES1326683-001	Anonymous	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: 3199162)									
ES1326681-001	LQ_SB02_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		
ES1326683-001	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



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: 3199162) - continued										
ES1326683-001	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	<0.5	<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: 3199161)										
ES1326681-001	LQ_SB02_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	
ES1326683-001	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: 3199458)										
ES1326681-005	LO_MW03_0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1326681-009	LL_SB16_0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3199161)										
ES1326681-001	LQ_SB02_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	
ES1326683-001	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: 3199458)										
ES1326681-005	LO_MW03_0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1326681-009	LL_SB16_0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
EP080: BTEXN (QC Lot: 3199458)										
ES1326681-005	LO_MW03_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	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	LL_SB16_0.5	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			

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 Work Order : ES1326681
 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 (%)
EP231: Perfluorinated Compounds (QC Lot: 3200340)									
ES1326681-005	LO_MW03_0.5	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	
EG005T: Total Metals by ICP-AES (QCLot: 3200324)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	118	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	113	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	113	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	126	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	114	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	119	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	120	81	133	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3200325)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	79.1	66	112	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3199165)									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	88.3	57.4	117	
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	
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	



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: 3199459) - continued									
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	
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	



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: 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: 3199162)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	86.0	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	94.3	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	97.4	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	93.8	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	80.9	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	96.9	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	96.6	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	94.9	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	85.1	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	81.2	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	30.4	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3199162)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	95.9	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	99.3	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	102	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	104	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	94.6	79	123	



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: 3199162) - continued									
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	95.4	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	96.9	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	97.5	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	95.7	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	104	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	100	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	97.2	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	94.5	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199161)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	95.7	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	100	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	90.1	64	128	
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 Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199161)									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	96.6	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	97.2	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	87.2	63	131	
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: 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	0.5	mg/kg	<0.5	2 mg/kg	81.4	60	120	
	106-42-3								
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	
EP231: Perfluorinated Compounds (QCLot: 3200340)									
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	103	54	146	
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	114	54	134	
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	129	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

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: 3200324)							
ES1326681-001	LQ_SB02_0.1	EG005T: Arsenic	7440-38-2	50 mg/kg	119	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	111	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	116	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	115	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	114	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	123	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	120	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3200325)							
ES1326681-001	LQ_SB02_0.1	EG035T: Mercury	7439-97-6	5 mg/kg	76.9	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3199165)							
ES1326381-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	106	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3199459)							
ES1326681-005	LO_MW03_0.5	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	LO_MW03_0.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	84.3	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3199162)							
ES1326681-001	LQ_SB02_0.1	EP075(SIM): Phenol	108-95-2	10 mg/kg	76.2	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	86.0	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	87.5	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	87.4	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	72.9	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3199162)							
ES1326681-001	LQ_SB02_0.1	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	83.4	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	94.3	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199161)							
ES1326681-001	LQ_SB02_0.1	EP071: C10 - C14 Fraction	----	640 mg/kg	77.2	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	79.0	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	66.1	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199458)							
ES1326681-005	LO_MW03_0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	106	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199161)							
ES1326681-001	LQ_SB02_0.1	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	98.5	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	71.3	53	131



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	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199161) - continued								
ES1326681-001	LQ_SB02_0.1	EP071: >C34 - C40 Fraction	----	2400 mg/kg	54.9	52	132	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199458)								
ES1326681-005	LO_MW03_0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	104	70	130	
EP080: BTEXN (QCLot: 3199458)								
ES1326681-005	LO_MW03_0.5	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	2.5 mg/kg	86.0	70	130	
			106-42-3					
		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	
EP231: Perfluorinated Compounds (QCLot: 3200340)								
ES1326681-005	LO_MW03_0.5	EP231: PFOS	1763-23-1	0.0025 mg/kg	84.1	54	146	
		EP231: PFOA	335-67-1	0.0025 mg/kg	90.9	54	134	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	113	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 (%)
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199161)										
ES1326681-001	LQ_SB02_0.1	EP071: C10 - C14 Fraction	----	640 mg/kg	77.2	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	79.0	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	66.1	----	52	132	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199161)										
ES1326681-001	LQ_SB02_0.1	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	98.5	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	71.3	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	54.9	----	52	132	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3199162)										
ES1326681-001	LQ_SB02_0.1	EP075(SIM): Phenol	108-95-2	10 mg/kg	76.2	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	86.0	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	87.5	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	87.4	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	72.9	----	20	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: 3199162)										
ES1326681-001	LQ_SB02_0.1	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	83.4	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	94.3	----	70	130	----	----
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3199165)										
ES1326381-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	106	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199458)										
ES1326681-005	LO_MW03_0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	106	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199458)										
ES1326681-005	LO_MW03_0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	104	----	70	130	----	----
EP080: BTEXN (QCLot: 3199458)										
ES1326681-005	LO_MW03_0.5	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	2.5 mg/kg	86.0	----	70	130	----	----
			106-42-3							
		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	LO_MW03_0.5	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	LO_MW03_0.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	84.3	----	70	130	----	----
EG005T: Total Metals by ICP-AES (QCLot: 3200324)										
ES1326681-001	LQ_SB02_0.1	EG005T: Arsenic	7440-38-2	50 mg/kg	119	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	111	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	116	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	115	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	114	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	123	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	120	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3200325)										
ES1326681-001	LQ_SB02_0.1	EG035T: Mercury	7439-97-6	5 mg/kg	76.9	----	70	130	----	----
EP231: Perfluorinated Compounds (QCLot: 3200340)										
ES1326681-005	LO_MW03_0.5	EP231: PFOS	1763-23-1	0.0025 mg/kg	84.1	----	54	146	----	----
		EP231: PFOA	335-67-1	0.0025 mg/kg	90.9	----	54	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	113	----	56	138	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326681	Page	: 1 of 8
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOE FERRING	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
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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	: LIDDELL	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 10-DEC-2013
Sampler	: JK	No. of samples received	: 15
Order number	: 0224198	No. of samples analysed	: 12
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)								
LQ_SB02_0.1, LH_SB01_0.5, LO_MW03_0.5, LL_SB11_0.5, LL_SB16_0.5	LH_MW02_0.5, LH_MW01_0.5, LL_SB15_0.5, LL_SB17_0.1, LO_MW06_0.5	30-NOV-2013	----	----	----	09-DEC-2013	14-DEC-2013	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
LQ_SB02_0.1, LH_SB01_0.5, LO_MW03_0.5, LL_SB11_0.5, LL_SB16_0.5	LH_MW02_0.5, LH_MW01_0.5, LL_SB15_0.5, LL_SB17_0.1, LO_MW06_0.5	30-NOV-2013	09-DEC-2013	29-MAY-2014	✓	09-DEC-2013	29-MAY-2014	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
LQ_SB02_0.1, LH_SB01_0.5, LO_MW03_0.5, LL_SB11_0.5, LL_SB16_0.5	LH_MW02_0.5, LH_MW01_0.5, LL_SB15_0.5, LL_SB17_0.1, LO_MW06_0.5	30-NOV-2013	09-DEC-2013	28-DEC-2013	✓	10-DEC-2013	28-DEC-2013	✓
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066)								
LQ_SB02_0.1, LL_SB15_0.5, LL_SB17_0.1, LO_MW06_0.5	LO_MW03_0.5, LL_SB11_0.5, LL_SB16_0.5	30-NOV-2013	09-DEC-2013	14-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
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Soil Glass Jar - Unpreserved (EP071)							
LQ_SB02_0.1, LH_MW02_0.5, LH_SB01_0.5, LH_MW01_0.5, LO_MW03_0.5, LL_SB15_0.5, LL_SB11_0.5, LL_SB17_0.1, LL_SB16_0.5, LO_MW06_0.5	30-NOV-2013	09-DEC-2013	14-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074)							
LO_MW03_0.5, LO_MW06_0.5	30-NOV-2013	---	07-DEC-2013	----	07-DEC-2013	07-DEC-2013	✓
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074)							
LO_MW03_0.5, LO_MW06_0.5	30-NOV-2013	---	07-DEC-2013	----	07-DEC-2013	07-DEC-2013	✓
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074)							
LO_MW03_0.5, LO_MW06_0.5	30-NOV-2013	---	07-DEC-2013	----	07-DEC-2013	07-DEC-2013	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074)							
LO_MW03_0.5, LO_MW06_0.5	30-NOV-2013	---	07-DEC-2013	----	07-DEC-2013	07-DEC-2013	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074)							
LO_MW03_0.5, LO_MW06_0.5	30-NOV-2013	---	07-DEC-2013	----	07-DEC-2013	07-DEC-2013	✓
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074)							
LO_MW03_0.5, LO_MW06_0.5	30-NOV-2013	---	07-DEC-2013	----	07-DEC-2013	07-DEC-2013	✓
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved (EP074)							
LO_MW03_0.5, LO_MW06_0.5	30-NOV-2013	---	07-DEC-2013	----	07-DEC-2013	07-DEC-2013	✓
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074)							
LO_MW03_0.5, LO_MW06_0.5	30-NOV-2013	---	07-DEC-2013	----	07-DEC-2013	07-DEC-2013	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM))							
LQ_SB02_0.1, LH_MW02_0.5, LH_SB01_0.5, LH_MW01_0.5, LO_MW03_0.5, LL_SB15_0.5, LL_SB11_0.5, LL_SB17_0.1, LL_SB16_0.5, LO_MW06_0.5	30-NOV-2013	09-DEC-2013	14-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))							
LQ_SB02_0.1, LH_MW02_0.5, LH_SB01_0.5, LH_MW01_0.5, LO_MW03_0.5, LL_SB15_0.5, LL_SB11_0.5, LL_SB17_0.1, LL_SB16_0.5, LO_MW06_0.5	30-NOV-2013	09-DEC-2013	14-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
TRIP SPIKE 11, TSC 11	28-NOV-2013	---	12-DEC-2013	----	07-DEC-2013	12-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080)							
LQ_SB02_0.1, LH_MW02_0.5, LH_SB01_0.5, LH_MW01_0.5, LO_MW03_0.5, LL_SB15_0.5, LL_SB11_0.5, LL_SB17_0.1, LL_SB16_0.5, LO_MW06_0.5	30-NOV-2013	---	14-DEC-2013	----	07-DEC-2013	14-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Soil Glass Jar - Unpreserved (EP080)							
TRIP SPIKE 11, TSC 11	28-NOV-2013	---	12-DEC-2013	----	07-DEC-2013	12-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080)							
LQ_SB02_0.1, LH_MW02_0.5, LH_SB01_0.5, LH_MW01_0.5, LO_MW03_0.5, LL_SB15_0.5, LL_SB11_0.5, LL_SB17_0.1, LL_SB16_0.5, LO_MW06_0.5	30-NOV-2013	---	14-DEC-2013	----	07-DEC-2013	14-DEC-2013	✓
EP231: Perfluorinated Compounds							
Soil Glass Jar - Unpreserved (EP231)							
LO_MW03_0.5, LO_MW06_0.5	30-NOV-2013	09-DEC-2013	29-MAY-2014	✓	09-DEC-2013	18-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)							
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	1	3	33.3	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	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	19	10.5	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
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	3	33.3	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	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	19	5.3	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
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	3	33.3	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	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	19	5.3	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
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	3	33.3	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	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	19	5.3	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
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)
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
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.
Volatiles Water Preparation	ORG16-W	SOIL	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.
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.

Page : 7 of 8
Work Order : ES1326681
Client : ENVIRO RESOURCES MANAGEMENT
Project : Project Symphony



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
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							
EP080S: TPH(V)/BTEX Surrogates	ES1326681-014	TSC 11	1,2-Dichloroethane-D4	17060-07-0	72.1 %	72.8-133.2 %	Recovery less than lower data quality objective
EP080S: TPH(V)/BTEX Surrogates	ES1326681-007	LL_SB11_0.5	Toluene-D8	2037-26-5	71.6 %	73.9-132.1 %	Recovery less than lower data quality objective

Outliers : Analysis Holding Time Compliance

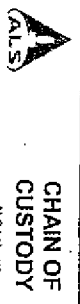
This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- 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.



ALS Laboratory
 300 Adelaide Road
 Christchurch 8001
 New Zealand
 Phone: +64 3 322 3000
 Fax: +64 3 322 3001
 Email: info@als.com

Standard TAT may be longer for some tests e.g.
 Ultra Trace Contaminants
 Standard TAT (List the date)
 Non Standard or urgent TAT (List the date)

ORDER NUMBER: **6224149**
 PROJECT MANAGER: **Joe Kenny**
 SAMPLER: **Bob Gynn**

CONTRACT NO: **SYNSAT13**
 CONTRACT PH: _____
 RELINQUISHED BY: _____
 DATE/TIME: _____

CLIENT: **Sydney**
 OFFICE: **Lyttelton**
 PROJECT: **Project Synphony**
 ORDER NUMBER: **6224149**
 PROJECT MANAGER: **Joe Kenny**
 SAMPLER: **Bob Gynn**
 COC emailed to ALS? **YES / NO**
 Email Reports to (will default to PM if no other addresses are listed): **syphony@water@em.com**
 Email Invoicing to (will default to PM if no other addresses are listed): _____

TURNAROUND REQUIREMENTS:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)	CONTAINER INFORMATION	ANALYSIS REQUIRED including SUITES (NB: Suite Codes must be listed to allow suite price) Where Matrix is required, specify Total (undiluted bottle required) or Dissolved (field filtered 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, Bi, Mo, Ti, Se)	S-24 TRH (C6-C40)/STEXN, 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, dilution, or samples requiring specific COC analysis etc.	
1	LL-SB14-1.3-1.4	30/11/13	SOIL	1G		1	X												
2	LL-SB16-1.9-2.0			1G		1	X												
3	LL-SB12-0.4-0.5			1G + Bag		2	X												
4	LL-SB12-2.1-2.2			1G		1	X												
5	LL-SB11-2.1-2.2					1	X												
6	LL-SB15-2.4-2.5					1	X												
7	LL-SB07-0.6-0.7					1	X												
8	LL-SB03-1.5-1.6					1	X												
9	LL-SB02-0.75-0.85					1	X												
10	LO-MW16-3.7-3.9					1	X												

RECEIVED BY: **Frank MS**
 DATE/TIME: **14-12-13 1400**
 RELINQUISHED BY: _____
 DATE/TIME: _____

FOR LABORATORY USE ONLY (Circle)
 Custody Seal Intact? Yes No N/A
 Free Seal / Frozen Ice Pellets present upon receipt? Yes No N/A
 Random Sample Temperature on Receipt: _____ °C

Subson / Forward Lab / Split WU
 Lab / Analysis: **Met / Asbestos**
 Date: **14/12/13**
 Relinquished By / Date: **Kenny**
 Connote / Courier: _____
 WO No: **ES1326683**
 Attach By PO / Internal Sheet: _____

Water Containing Codes: F = Unpreserved Plastic; N = Nitric Preserved Plastic; ORG = Nitric Preserved ORG; SH = Sodium Hydroxide Preserved Plastic; S = Sodium Hydroxide Preserved Plastic; Ag = Acetone Preserved Plastic; H = HCl preserved plastic
 V = VOA Volatil Preserved; Vb = VOA Volat Sodium Borate Preserved; VS = VOA Vol Soluble Preserved; AV = Air/High Temp Preserved; VAI SO = Sulfide Preserved Amber Glass
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Starch Bottle; ASS = Plastic Bag for Acid Sulphate Salt; U = Unpreserved Bp

Environmental Division
 Sydney
 Work Order
ES1326683
 Telephone: +61-2-8784 8555

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: ES1326683		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOE FERRING	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	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	: LIDDELL		
Sampler	: JG		

Dates

Date Samples Received	: 04-DEC-2013	Issue Date	: 06-DEC-2013 16:36
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	: 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 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.**
- **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 - ASB-SOL (Subcontracted) Asbestos - Count (Solid)	SOIL - EP066 (solids) Polychlorinated Biphenyls by GC/MS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP231 Perfluorooctyl Acids and Sulfonates by LC/MS/MS	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-24 TRH/BTEX/PAH + Phenols
ES1326683-001	30-NOV-2013 15:00	LL_SB14_1.3-1.4		✓			✓	✓
ES1326683-002	30-NOV-2013 15:00	LL_SB10_1.9-2.0		✓			✓	✓
ES1326683-003	30-NOV-2013 15:00	LL_SB12_0.4-0.5	✓	✓			✓	✓
ES1326683-004	30-NOV-2013 15:00	LL_SB12_2.1-2.2		✓			✓	✓
ES1326683-005	30-NOV-2013 15:00	LL_SB11_2.1-2.2		✓			✓	✓
ES1326683-006	30-NOV-2013 15:00	LL_SB15_2.4-2.5		✓			✓	✓
ES1326683-007	30-NOV-2013 15:00	LL_SB07_0.6-0.7		✓			✓	✓
ES1326683-008	30-NOV-2013 15:00	LL_SB03_1.5-1.6		✓			✓	✓
ES1326683-009	30-NOV-2013 15:00	LL_SB02_0.75-0.85		✓			✓	✓
ES1326683-010	30-NOV-2013 15:00	LO_MW16_3.7-3.9		✓	✓	✓	✓	✓

Proactive Holding Time Report

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

Requested Deliverables

MR JOE 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 : ES1326683 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOE FERRING Address : GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009 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 : JG Site : 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 : 04-DEC-2013 Issue Date : 10-DEC-2013 No. of samples received : 10 No. of samples analysed : 10
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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 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

- **EP231: PFOA & PFOS results are reported as an aggregate of linear and branched isomers.**



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				LL_SB14_1.3-1.4	LL_SB10_1.9-2.0	LL_SB12_0.4-0.5	LL_SB12_2.1-2.2	LL_SB11_2.1-2.2
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00
				ES1326683-001	ES1326683-002	ES1326683-003	ES1326683-004	ES1326683-005
Compound	CAS Number	LOR	Unit					
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	13.8	18.6	22.2	20.4	23.3
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	6	<5	15	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	19	11	20	9	6
Copper	7440-50-8	5	mg/kg	14	<5	6	<5	<5
Lead	7439-92-1	5	mg/kg	8	6	11	26	36
Nickel	7440-02-0	2	mg/kg	8	<2	9	<2	<2
Zinc	7440-66-6	5	mg/kg	39	11	18	9	7
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
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



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LL_SB14_1.3-1.4	LL_SB10_1.9-2.0	LL_SB12_0.4-0.5	LL_SB12_2.1-2.2	LL_SB11_2.1-2.2
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326683-001	ES1326683-002	ES1326683-003	ES1326683-004	ES1326683-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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
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



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LL_SB14_1.3-1.4	LL_SB10_1.9-2.0	LL_SB12_0.4-0.5	LL_SB12_2.1-2.2	LL_SB11_2.1-2.2
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326683-001	ES1326683-002	ES1326683-003	ES1326683-004	ES1326683-005
EP080: BTEXN - Continued								
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	%	65.9	64.4	62.2	66.7	62.8
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	80.5	86.1	82.4	80.0	84.7
2-Chlorophenol-D4	93951-73-6	0.1	%	96.2	100	98.1	97.6	101
2,4,6-Tribromophenol	118-79-6	0.1	%	115	114	121	113	112
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	98.0	105	101	98.3	104
Anthracene-d10	1719-06-8	0.1	%	91.4	97.9	91.0	91.8	96.0
4-Terphenyl-d14	1718-51-0	0.1	%	85.8	94.0	91.0	86.4	91.6
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	85.2	82.2	88.0	81.6	82.0
Toluene-D8	2037-26-5	0.1	%	87.2	99.1	97.5	95.3	89.7
4-Bromofluorobenzene	460-00-4	0.1	%	97.6	94.7	103	92.0	92.2



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LL_SB15_2.4-2.5	LL_SB07_0.6-0.7	LL_SB03_1.5-1.6	LL_SB02_0.75-0.85	LO_MW16_3.7-3.9
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326683-006	ES1326683-007	ES1326683-008	ES1326683-009	ES1326683-010
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	17.2	12.8	17.2	10.6	20.9
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	22	6	6	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	29	30	30	20	7
Copper	7440-50-8	5	mg/kg	15	28	22	13	<5
Lead	7439-92-1	5	mg/kg	18	10	10	7	8
Nickel	7440-02-0	2	mg/kg	11	16	11	7	2
Zinc	7440-66-6	5	mg/kg	49	74	51	31	8
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
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

Compound	CAS Number	LOR	Unit	LL_SB15_2.4-2.5	LL_SB07_0.6-0.7	LL_SB03_1.5-1.6	LL_SB02_0.75-0.85	LO_MW16_3.7-3.9
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00
				ES1326683-006	ES1326683-007	ES1326683-008	ES1326683-009	ES1326683-010
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

				LL_SB15_2.4-2.5	LL_SB07_0.6-0.7	LL_SB03_1.5-1.6	LL_SB02_0.75-0.85	LO_MW16_3.7-3.9
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326683-006	ES1326683-007	ES1326683-008	ES1326683-009	ES1326683-010
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

				LL_SB15_2.4-2.5	LL_SB07_0.6-0.7	LL_SB03_1.5-1.6	LL_SB02_0.75-0.85	LO_MW16_3.7-3.9
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326683-006	ES1326683-007	ES1326683-008	ES1326683-009	ES1326683-010
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

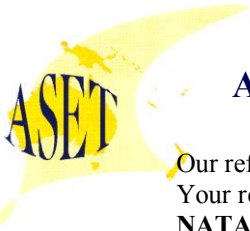
Client sampling date / time

				LL_SB15_2.4-2.5	LL_SB07_0.6-0.7	LL_SB03_1.5-1.6	LL_SB02_0.75-0.85	LO_MW16_3.7-3.9
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326683-006	ES1326683-007	ES1326683-008	ES1326683-009	ES1326683-010
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
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	%	62.2	62.4	62.8	61.9	62.4
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	----	----	76.1
Toluene-D8	2037-26-5	0.1	%	----	----	----	----	101
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	----	----	87.5
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	78.4	79.9	82.9	77.3	84.7
2-Chlorophenol-D4	93951-73-6	0.1	%	92.5	95.0	98.0	93.0	101
2,4,6-Tribromophenol	118-79-6	0.1	%	112	117	121	114	114
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	96.4	98.9	101	96.0	104
Anthracene-d10	1719-06-8	0.1	%	88.1	91.1	94.4	88.2	96.2
4-Terphenyl-d14	1718-51-0	0.1	%	84.4	85.5	89.2	84.2	91.4
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	83.6	87.2	85.8	85.1	86.6
Toluene-D8	2037-26-5	0.1	%	98.0	97.1	91.4	101	84.5
4-Bromofluorobenzene	460-00-4	0.1	%	94.4	96.8	91.5	93.8	79.0



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



AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD

ABN 36 088 095 112

Our ref : ASET36461/ 39641 / 1 - 1

Your ref :ES1326683

NATA Accreditation No: 14484

7 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 one sample, forwarded by Australian Laboratory Services Pty Ltd on 7 December 2013, for analysis for asbestos.

1.Introduction:One sample forwarded was examined and analysed for the presence of asbestos.

2. Methods : The sample was 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. ASET36461 / 39641 / 1. ES1326683 - 003 - LL - SB12 - 0.4 - 0.5.**
Approx dimensions 8.0 cm x 89.0 cm x 4.75 cm
The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of sandstone and plaster.
No asbestos detected.

Analysed and reported by,



**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.**

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

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ASBESTOS DETECTION & IDENTIFICATION • REPAIR & CALIBRATION OF SCIENTIFIC EQUIPMENT • AIRBORNE FIBRE & SILICA MONITORING

QUALITY CONTROL REPORT

Work Order	: ES1326683	Page	: 1 of 16
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOE FERRING	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	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	: LIDDELL	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 10-DEC-2013
Sampler	: JG	No. of samples received	: 10
Order number	: 0224198	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



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 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: 3201224)									
ES1326681-008	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	22.9	22.4	2.4	0% - 20%
ES1326683-009	LL_SB02_0.75-0.85	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	10.6	10.4	2.5	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 3200324)									
ES1326681-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	12	34.9	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	18	30	46.0	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	14	15	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	11	15	36.4	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	15	21	30.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	63	81	24.5	0% - 50%
ES1326683-001	LL_SB14_1.3-1.4	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	19	21	13.8	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	8	10	21.6	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	7	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	14	15	11.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	15	57.2	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	39	45	14.1	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3200325)									
ES1326681-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326683-001	LL_SB14_1.3-1.4	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3199165)									
ES1326381-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326683-003	LL_SB12_0.4-0.5	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	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



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: 3199459) - continued									
ES1326681-005	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: 3199459)									
ES1326681-005	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
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		



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)											
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		
		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: 3199162)											
ES1326681-001	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		
		ES1326683-001	LL_SB14_1.3-1.4	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: 3199162) - continued									
ES1326683-001	LL_SB14_1.3-1.4	EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3199162)									
ES1326681-001	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		
ES1326683-001	LL_SB14_1.3-1.4	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: 3198050)									
ES1326683-001	LL_SB14_1.3-1.4	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1326685-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3199161)									
ES1326681-001	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
ES1326683-001	LL_SB14_1.3-1.4	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: 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 Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3198050)									
ES1326683-001	LL_SB14_1.3-1.4	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1326685-002	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: 3199161)									
ES1326681-001	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
ES1326683-001	LL_SB14_1.3-1.4	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: 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: BTEXN (QC Lot: 3198050)									
ES1326683-001	LL_SB14_1.3-1.4	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	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
ES1326685-002	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		



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: 3198050) - continued									
ES1326685-002	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	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	108-38-3 106-42-3	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
ES1326681-009	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: 3200340)									
ES1326681-005	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



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: 3200324)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	118	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	113	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	113	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	126	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	114	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	119	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	120	81	133	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3200325)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	79.1	66	112	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3199165)									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	88.3	57.4	117	
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	
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	



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: 3199459) - continued									
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	
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	



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: 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: 3199162)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	86.0	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	94.3	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	97.4	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	93.8	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	80.9	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	96.9	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	96.6	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	94.9	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	85.1	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	81.2	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	30.4	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3199162)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	95.9	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	99.3	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	102	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	104	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	94.6	79	123	



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: 3199162) - continued									
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	95.4	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	96.9	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	97.5	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	95.7	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	104	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	100	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	97.2	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	94.5	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3198050)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	88.5	68.4	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199161)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	95.7	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	100	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	90.1	64	128	
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 Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3198050)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	88.6	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199161)									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	96.6	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	97.2	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	87.2	63	131	
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: BTEXN (QCLot: 3198050)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	81.3	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	90.2	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	83.0	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	81.6	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	88.7	62	138	
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	



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: 3199458) - continued								
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
EP231: Perfluorinated Compounds (QCLot: 3200340)								
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	103	54	146
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	114	54	134
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	129	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: 3200324)							
ES1326681-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	119	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	111	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	116	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	115	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	114	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	123	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	120	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3200325)							
ES1326681-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	76.9	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3199165)							
ES1326381-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	106	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
EP075(SIM)A: Phenolic Compounds (QCLot: 3199162)							
ES1326681-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	76.2	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	86.0	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	87.5	60	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: 3199162) - continued								
ES1326681-001	Anonymous	EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	87.4	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	72.9	20	130	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3199162)								
ES1326681-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	83.4	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	94.3	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3198050)								
ES1326683-001	LL_SB14_1.3-1.4	EP080: C6 - C9 Fraction	----	32.5 mg/kg	106	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199161)								
ES1326681-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	77.2	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	79.0	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	66.1	52	132	
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: 3198050)								
ES1326683-001	LL_SB14_1.3-1.4	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	104	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199161)								
ES1326681-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	98.5	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	71.3	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	54.9	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: BTEXN (QCLot: 3198050)								
ES1326683-001	LL_SB14_1.3-1.4	EP080: Benzene	71-43-2	2.5 mg/kg	85.1	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	89.0	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	83.2	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	82.8	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	80.4	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	82.3	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	2.5 mg/kg	86.0	70	130	
			106-42-3					
EP080: ortho-Xylene	95-47-6	2.5 mg/kg	92.5	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
EP080: BTEXN (QCLot: 3199458) - continued							
ES1326681-005	Anonymous	EP080: Naphthalene	91-20-3	2.5 mg/kg	83.5	70	130
EP231: Perfluorinated Compounds (QCLot: 3200340)							
ES1326681-005	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	84.1	54	146
		EP231: PFOA	335-67-1	0.0025 mg/kg	90.9	54	134
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	113	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 (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3198050)											
ES1326683-001	LL_SB14_1.3-1.4	EP080: C6 - C9 Fraction	----	32.5 mg/kg	106	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3198050)											
ES1326683-001	LL_SB14_1.3-1.4	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	104	----	70	130	----	----	
EP080: BTEXN (QCLot: 3198050)											
ES1326683-001	LL_SB14_1.3-1.4	EP080: Benzene	71-43-2	2.5 mg/kg	85.1	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	89.0	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	83.2	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	82.8	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	80.4	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	82.3	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199161)											
ES1326681-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	77.2	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	79.0	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	66.1	----	52	132	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199161)											
ES1326681-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	98.5	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	71.3	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	54.9	----	52	132	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3199162)											
ES1326681-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	76.2	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	86.0	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	87.5	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	87.4	----	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)A: Phenolic Compounds (QCLot: 3199162) - continued											
ES1326681-001	Anonymous	EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	72.9	----	20	130	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3199162)											
ES1326681-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	83.4	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	94.3	----	70	130	----	----	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3199165)											
ES1326381-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	106	----	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 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	2.5 mg/kg	86.0	----	70	130	----	----	
			106-42-3								
		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	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3200324)											
ES1326681-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	119	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	111	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	116	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	115	----	70	130	----	----	
		EG005T: Lead	7439-92-1	125 mg/kg	114	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	123	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	125 mg/kg	120	----	70	130	----	----	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3200325)											
ES1326681-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	76.9	----	70	130	----	----	
EP231: Perfluorinated Compounds (QCLot: 3200340)											
ES1326681-005	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	84.1	----	54	146	----	----	
		EP231: PFOA	335-67-1	0.0025 mg/kg	90.9	----	54	134	----	----	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	113	----	56	138	----	----	

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326683	Page	: 1 of 9
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOE FERRING	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	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	: LIDDELL	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 10-DEC-2013
Sampler	: JG	No. of samples received	: 10
Order number	: 0224198	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	
EA055: Moisture Content								
Soil Glass Jar - Unpreserved (EA055-103)								
LL_SB14_1.3-1.4, LL_SB12_0.4-0.5, LL_SB11_2.1-2.2, LL_SB07_0.6-0.7, LL_SB02_0.75-0.85,	LL_SB10_1.9-2.0, LL_SB12_2.1-2.2, LL_SB15_2.4-2.5, LL_SB03_1.5-1.6, LO_MW16_3.7-3.9	30-NOV-2013	----	----	----	09-DEC-2013	14-DEC-2013	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
LL_SB14_1.3-1.4, LL_SB12_0.4-0.5, LL_SB11_2.1-2.2, LL_SB07_0.6-0.7, LL_SB02_0.75-0.85,	LL_SB10_1.9-2.0, LL_SB12_2.1-2.2, LL_SB15_2.4-2.5, LL_SB03_1.5-1.6, LO_MW16_3.7-3.9	30-NOV-2013	09-DEC-2013	29-MAY-2014	✓	09-DEC-2013	29-MAY-2014	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
LL_SB14_1.3-1.4, LL_SB12_0.4-0.5, LL_SB11_2.1-2.2, LL_SB07_0.6-0.7, LL_SB02_0.75-0.85,	LL_SB10_1.9-2.0, LL_SB12_2.1-2.2, LL_SB15_2.4-2.5, LL_SB03_1.5-1.6, LO_MW16_3.7-3.9	30-NOV-2013	09-DEC-2013	28-DEC-2013	✓	10-DEC-2013	28-DEC-2013	✓
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066)								
LL_SB14_1.3-1.4, LL_SB12_0.4-0.5, LL_SB11_2.1-2.2, LL_SB07_0.6-0.7, LL_SB02_0.75-0.85,	LL_SB10_1.9-2.0, LL_SB12_2.1-2.2, LL_SB15_2.4-2.5, LL_SB03_1.5-1.6, LO_MW16_3.7-3.9	30-NOV-2013	09-DEC-2013	14-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
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) LL_SB14_1.3-1.4, LL_SB12_0.4-0.5, LL_SB11_2.1-2.2, LL_SB07_0.6-0.7, LL_SB02_0.75-0.85, LL_SB10_1.9-2.0, LL_SB12_2.1-2.2, LL_SB15_2.4-2.5, LL_SB03_1.5-1.6, LO_MW16_3.7-3.9	30-NOV-2013	09-DEC-2013	14-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074) LO_MW16_3.7-3.9	30-NOV-2013	---	07-DEC-2013	----	09-DEC-2013	07-DEC-2013	*
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074) LO_MW16_3.7-3.9	30-NOV-2013	---	07-DEC-2013	----	09-DEC-2013	07-DEC-2013	*
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074) LO_MW16_3.7-3.9	30-NOV-2013	---	07-DEC-2013	----	09-DEC-2013	07-DEC-2013	*
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074) LO_MW16_3.7-3.9	30-NOV-2013	---	07-DEC-2013	----	09-DEC-2013	07-DEC-2013	*
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074) LO_MW16_3.7-3.9	30-NOV-2013	---	07-DEC-2013	----	09-DEC-2013	07-DEC-2013	*
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074) LO_MW16_3.7-3.9	30-NOV-2013	---	07-DEC-2013	----	09-DEC-2013	07-DEC-2013	*
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved (EP074) LO_MW16_3.7-3.9	30-NOV-2013	---	07-DEC-2013	----	09-DEC-2013	07-DEC-2013	*
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074) LO_MW16_3.7-3.9	30-NOV-2013	---	07-DEC-2013	----	09-DEC-2013	07-DEC-2013	*
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) LL_SB14_1.3-1.4, LL_SB12_0.4-0.5, LL_SB11_2.1-2.2, LL_SB07_0.6-0.7, LL_SB02_0.75-0.85, LL_SB10_1.9-2.0, LL_SB12_2.1-2.2, LL_SB15_2.4-2.5, LL_SB03_1.5-1.6, LO_MW16_3.7-3.9	30-NOV-2013	09-DEC-2013	14-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))								
LL_SB14_1.3-1.4, LL_SB12_0.4-0.5, LL_SB11_2.1-2.2, LL_SB07_0.6-0.7, LL_SB02_0.75-0.85,	LL_SB10_1.9-2.0, LL_SB12_2.1-2.2, LL_SB15_2.4-2.5, LL_SB03_1.5-1.6, LO_MW16_3.7-3.9	30-NOV-2013	09-DEC-2013	14-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
LO_MW16_3.7-3.9		30-NOV-2013	---	14-DEC-2013	----	09-DEC-2013	14-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080)								
LL_SB14_1.3-1.4, LL_SB12_0.4-0.5, LL_SB11_2.1-2.2, LL_SB07_0.6-0.7, LL_SB02_0.75-0.85	LL_SB10_1.9-2.0, LL_SB12_2.1-2.2, LL_SB15_2.4-2.5, LL_SB03_1.5-1.6,	30-NOV-2013	06-DEC-2013	14-DEC-2013	✓	09-DEC-2013	14-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Soil Glass Jar - Unpreserved (EP080)								
LO_MW16_3.7-3.9		30-NOV-2013	---	14-DEC-2013	----	09-DEC-2013	14-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080)								
LL_SB14_1.3-1.4, LL_SB12_0.4-0.5, LL_SB11_2.1-2.2, LL_SB07_0.6-0.7, LL_SB02_0.75-0.85	LL_SB10_1.9-2.0, LL_SB12_2.1-2.2, LL_SB15_2.4-2.5, LL_SB03_1.5-1.6,	30-NOV-2013	06-DEC-2013	14-DEC-2013	✓	09-DEC-2013	14-DEC-2013	✓
EP231: Perfluorinated Compounds								
Soil Glass Jar - Unpreserved (EP231)								
LO_MW16_3.7-3.9		30-NOV-2013	09-DEC-2013	29-MAY-2014	✓	09-DEC-2013	18-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		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Reaular	Actual	Expected	Evaluation	
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
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	3	33.3	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	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)							
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	3	33.3	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	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)							
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	3	33.3	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	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)							
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	3	33.3	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	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
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)
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
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.

Page : 7 of 9
Work Order : ES1326683
Client : ENVIRO RESOURCES MANAGEMENT
Project : Project Symphony



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
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 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 LO_MW16_3.7-3.9	----	----	----	09-DEC-2013	07-DEC-2013	2
EP074B: Oxygenated Compounds						
Soil Glass Jar - Unpreserved LO_MW16_3.7-3.9	----	----	----	09-DEC-2013	07-DEC-2013	2
EP074C: Sulfonated Compounds						
Soil Glass Jar - Unpreserved LO_MW16_3.7-3.9	----	----	----	09-DEC-2013	07-DEC-2013	2
EP074D: Fumigants						
Soil Glass Jar - Unpreserved LO_MW16_3.7-3.9	----	----	----	09-DEC-2013	07-DEC-2013	2
EP074E: Halogenated Aliphatic Compounds						
Soil Glass Jar - Unpreserved LO_MW16_3.7-3.9	----	----	----	09-DEC-2013	07-DEC-2013	2
EP074F: Halogenated Aromatic Compounds						
Soil Glass Jar - Unpreserved LO_MW16_3.7-3.9	----	----	----	09-DEC-2013	07-DEC-2013	2
EP074G: Trihalomethanes						
Soil Glass Jar - Unpreserved LO_MW16_3.7-3.9	----	----	----	09-DEC-2013	07-DEC-2013	2



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
EP074H: Naphthalene						
Soil Glass Jar - Unpreserved LO_MW16_3.7-3.9	----	----	----	09-DEC-2013	07-DEC-2013	2

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
Phone 08 835 3100

1000, 1010, 1020, 1030, 1040, 1050, 1060, 1070, 1080, 1090, 1100, 1110, 1120, 1130, 1140, 1150, 1160, 1170, 1180, 1190, 1200, 1210, 1220, 1230, 1240, 1250, 1260, 1270, 1280, 1290, 1300, 1310, 1320, 1330, 1340, 1350, 1360, 1370, 1380, 1390, 1400, 1410, 1420, 1430, 1440, 1450, 1460, 1470, 1480, 1490, 1500, 1510, 1520, 1530, 1540, 1550, 1560, 1570, 1580, 1590, 1600, 1610, 1620, 1630, 1640, 1650, 1660, 1670, 1680, 1690, 1700, 1710, 1720, 1730, 1740, 1750, 1760, 1770, 1780, 1790, 1800, 1810, 1820, 1830, 1840, 1850, 1860, 1870, 1880, 1890, 1900, 1910, 1920, 1930, 1940, 1950, 1960, 1970, 1980, 1990, 2000

1000, 1010, 1020, 1030, 1040, 1050, 1060, 1070, 1080, 1090, 1100, 1110, 1120, 1130, 1140, 1150, 1160, 1170, 1180, 1190, 1200, 1210, 1220, 1230, 1240, 1250, 1260, 1270, 1280, 1290, 1300, 1310, 1320, 1330, 1340, 1350, 1360, 1370, 1380, 1390, 1400, 1410, 1420, 1430, 1440, 1450, 1460, 1470, 1480, 1490, 1500, 1510, 1520, 1530, 1540, 1550, 1560, 1570, 1580, 1590, 1600, 1610, 1620, 1630, 1640, 1650, 1660, 1670, 1680, 1690, 1700, 1710, 1720, 1730, 1740, 1750, 1760, 1770, 1780, 1790, 1800, 1810, 1820, 1830, 1840, 1850, 1860, 1870, 1880, 1890, 1900, 1910, 1920, 1930, 1940, 1950, 1960, 1970, 1980, 1990, 2000

1000, 1010, 1020, 1030, 1040, 1050, 1060, 1070, 1080, 1090, 1100, 1110, 1120, 1130, 1140, 1150, 1160, 1170, 1180, 1190, 1200, 1210, 1220, 1230, 1240, 1250, 1260, 1270, 1280, 1290, 1300, 1310, 1320, 1330, 1340, 1350, 1360, 1370, 1380, 1390, 1400, 1410, 1420, 1430, 1440, 1450, 1460, 1470, 1480, 1490, 1500, 1510, 1520, 1530, 1540, 1550, 1560, 1570, 1580, 1590, 1600, 1610, 1620, 1630, 1640, 1650, 1660, 1670, 1680, 1690, 1700, 1710, 1720, 1730, 1740, 1750, 1760, 1770, 1780, 1790, 1800, 1810, 1820, 1830, 1840, 1850, 1860, 1870, 1880, 1890, 1900, 1910, 1920, 1930, 1940, 1950, 1960, 1970, 1980, 1990, 2000

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

FOR LABORATORY USE ONLY (Circle)
Custody Seal intact? Yes No N/A
From kit / In situ test kit? Yes No N/A
Random Sample Temperature on Receipt? Yes No N/A

CLIENT: Yarra PROJECT: Sydney ORDER NUMBER: 0424821694 PROJECT MANAGER: He Pennington CONTACT PR: 0424970603 RELINQUISHED BY: R. Zia DATE/TIME: 30.11.13 RECEIVED BY: NS DATE/TIME: 4.12.13 12/12 6684

SAMPLER: R. Zia EDD FORMAT (or default): 0424821694 DATE/TIME: 30.11.13 DATE/TIME: 4.12.13

Comments on tidy containment levels, dilution, or sampler retaining specific QC analytes etc.

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)	CONTAINER INFORMATION	ANALYSIS REQUIRED (including suites and Suite Codes must be listed in block suite grid) (When Metals are required, specify total (unfiltered) or dissolved (filtered) both required)	Additional Information												
				TOTAL CONTAINERS	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, Tl, Se)	S-24 TRN (C6-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)	
	LAB ID: <u>Receiv on site per LLMWOS-3.2</u> SAMPLE ID: <u>LLMWOS-3.2</u> DATE / TIME: <u>30/11/13</u> MATRIX: <u>soil</u>															

Environmental Division
Sydney
Work Order
ES1326684
Barcode
Telephone: +61-2-8784 8555

Water Contaminants Codes: P = Unpreserved Plastic; N = Nitric Acid Preserved Plastic; DIC = Nitric Acid Preserved Plastic; S = Sodium Hydroxide Preserved Plastic; 3 = Sodium Hydroxide Preserved Plastic; AC = Amber Glass Unpreserved Plastic; AU = Amber Glass Unpreserved Plastic; AV = Amber Glass Unpreserved Plastic; V = VOA Vol PCB Preserved Vial; VD = VOA Vol Sealed Preserved Plastic; VS = VOA Vol Sealed Preserved Plastic; AV = Air Tight Unpreserved Vial; SG = Sealed Preserved Amber Glass; H = HCl in Sealed Plastic; HT = HCl Preserved Sealed Plastic; SP = Sealed Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; C = EDTA Preserved Bottle; ST = Plastic Bottle for Acid Sulphide; IS = Unpreserved Iron.

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: ES1326684		
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 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	: LIDDELL		
Sampler	: RG		

Dates

Date Samples Received	: 05-DEC-2013	Issue Date	: 06-DEC-2013 16:36
Client Requested Due Date	: 10-DEC-2013	Scheduled Reporting Date	: 10-DEC-2013

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 3.5°C SYD - Ice present
No. of coolers/boxes	: 2 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
- Samples received in appropriately pretreated and preserved containers.
- Sample LL_MW05_3.2 was received labeled as LL_MW05_2.3 on the jar, lab will use sample ID on the jar for analyse until further notice.
- **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 - EP066 (solids)	SOIL - S-27
ES1326684-001	30-NOV-2013 11:00	LL_MW05_2.3	✓	✓

Polychlorinated Biphenyls by GCMS
TRH/BTEXN/PAH/Phenols&Metals

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 : ES1326684 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 : RG Site : LIDDELL 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 : 05-DEC-2013 Issue Date : 10-DEC-2013 No. of samples received : 1 No. of samples analysed : 1
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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 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

LL_MW05_2.3

Client sampling date / time

30-NOV-2013 11:00

Compound	CAS Number	LOR	Unit	ES1326684-001	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

EA055: Moisture Content

Moisture Content (dried @ 103°C)	---	1.0	%	15.4	---	---	---	---
----------------------------------	-----	-----	---	------	-----	-----	-----	-----

EG005T: Total Metals by ICP-AES

Arsenic	7440-38-2	5	mg/kg	22	---	---	---	---
Cadmium	7440-43-9	1	mg/kg	<1	---	---	---	---
Chromium	7440-47-3	2	mg/kg	31	---	---	---	---
Copper	7440-50-8	5	mg/kg	8	---	---	---	---
Lead	7439-92-1	5	mg/kg	7	---	---	---	---
Nickel	7440-02-0	2	mg/kg	2	---	---	---	---
Zinc	7440-66-6	5	mg/kg	21	---	---	---	---

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	---	---	---	---
---------------------------------	-----	-----	-------	------	-----	-----	-----	-----

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	---	---	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

LL_MW05_2.3

Client sampling date / time

30-NOV-2013 11:00

Compound	CAS Number	LOR	Unit	ES1326684-001	---	---	---	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	---	---	---	---
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	---	---	---	---



Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Client sample ID

LL_MW05_2.3

Client sampling date / time

30-NOV-2013 11:00

Compound	CAS Number	LOR	Unit	ES1326684-001	----	----	----	----
EP080: BTEXN - Continued								
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	63.3	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	87.2	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	98.1	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	100	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	103	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	91.6	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	89.5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	80.5	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	73.6	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	75.8	----	----	----	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
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 : ES1326684 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 Site : LIDDELL C-O-C number : ---- Sampler : RG Order number : 0224198 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 : 05-DEC-2013 Issue Date : 10-DEC-2013 No. of samples received : 1 No. of samples analysed : 1
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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 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: 3201224)									
ES1326681-008	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	22.9	22.4	2.4	0% - 20%
ES1326683-009	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	10.6	10.4	2.5	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 3200326)									
ES1326684-001	LL_MW05_2.3	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	31	30	0.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	2	2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	22	20	11.1	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	8	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	7	8	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	21	20	5.5	No Limit
ES1326686-005	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	25	24	7.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	23	19	20.0	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	8	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	23	20	11.3	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	18	15	19.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	61	52	16.4	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3200327)									
ES1326684-001	LL_MW05_2.3	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326686-005	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3199165)									
ES1326381-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326683-003	Anonymous	EP066: Total Polychlorinated biphenyls	----	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



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: 3199164) - continued									
ES1326686-005	Anonymous	EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1326688-007	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: 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
		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	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: 3199164) - continued									
ES1326688-007	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: 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
ES1326688-007	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: 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 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	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: 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: 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	108-38-3 106-42-3	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: 3199458) - continued									
ES1326681-009	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: 3200326)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	119	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	110	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	113	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	115	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	111	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	118	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: 3200327)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	74.1	66	112	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3199165)									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	88.3	57.4	117	
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)									
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	



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: 3199164) - continued								
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: 3199458)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	78.1	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: 3199458)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	78.5	68.4	128
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	0.5	mg/kg	<0.5	2 mg/kg	81.4	60	120
	106-42-3							
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

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	Spike Recovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 3200326)							
ES1326684-001	LL_MW05_2.3	EG005T: Arsenic	7440-38-2	50 mg/kg	114	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
EG005T: Total Metals by ICP-AES (QCLot: 3200326) - continued							
ES1326684-001	LL_MW05_2.3	EG005T: Cadmium	7440-43-9	50 mg/kg	107	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	107	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	107	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	104	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3200327)							
ES1326684-001	LL_MW05_2.3	EG035T: Mercury	7439-97-6	5 mg/kg	73.9	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3199165)							
ES1326381-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	106	70	130
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: 3199458)							
ES1326681-005	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	106	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: 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



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
EP080: BTEXN (QCLot: 3199458) - continued							
ES1326681-005	Anonymous	EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	86.0	70	130
			106-42-3				
		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

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: 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	----	----
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3199165)										
ES1326381-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	106	----	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 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	----	----



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: 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	2.5 mg/kg	86.0	----	70	130	----	----	
			106-42-3								
		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	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3200326)											
ES1326684-001	LL_MW05_2.3	EG005T: Arsenic	7440-38-2	50 mg/kg	114	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	----	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	107	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	107	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	125 mg/kg	104	----	70	130	----	----	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3200327)											
ES1326684-001	LL_MW05_2.3	EG035T: Mercury	7439-97-6	5 mg/kg	73.9	----	70	130	----	----	

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326684	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	: LIDDELL	Date Samples Received	: 05-DEC-2013
C-O-C number	: ----	Issue Date	: 10-DEC-2013
Sampler	: RG	No. of samples received	: 1
Order number	: 0224198	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) LL_MW05_2.3	30-NOV-2013	----	----	----	09-DEC-2013	14-DEC-2013	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) LL_MW05_2.3	30-NOV-2013	09-DEC-2013	29-MAY-2014	✓	09-DEC-2013	29-MAY-2014	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) LL_MW05_2.3	30-NOV-2013	09-DEC-2013	28-DEC-2013	✓	10-DEC-2013	28-DEC-2013	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) LL_MW05_2.3	30-NOV-2013	09-DEC-2013	14-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) LL_MW05_2.3	30-NOV-2013	09-DEC-2013	14-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) LL_MW05_2.3	30-NOV-2013	09-DEC-2013	14-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) LL_MW05_2.3	30-NOV-2013	09-DEC-2013	14-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) LL_MW05_2.3	30-NOV-2013	---	14-DEC-2013	----	09-DEC-2013	14-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Soil Glass Jar - Unpreserved (EP080) LL_MW05_2.3	30-NOV-2013	---	14-DEC-2013	----	09-DEC-2013	14-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	Reaular	Actual	Expected	Evaluation	
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	16	12.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	14	14.3	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	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
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	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	14	7.1	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
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	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	14	7.1	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
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	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	14	7.1	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)
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)
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

- 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							
EP080S: TPH(V)/BTEX Surrogates	ES1326684-001	LL_MW05_2.3	Toluene-D8	2037-26-5	73.6 %	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.

ALS CHAIN OF CUSTODY
 Adelaide 21 Barma Road Pooraka SA 5005
 Brisbane 32 Strand Street Stalwart QLD 4008
 Cairns 17 3243 7222 E. samples.brisbane@alsglobal.com
 Gladstone 46 Callaway Rd Clinton QLD 4680
 Mackay 78 Harbour Road Mackay QLD 4740
 Melbourne 2-4 Westall Road Springvale VIC 3171
 Newcastle 5 Bass Gum Road Warahook NSW 2304
 Perth 10 Red Way Malaga WA 6000
 Sydney 277-280 Woodroffe Road Smeaton NSW 2151
 Townsville 14-15 Deanna Court Bohle QLD 4818
 Wollongong 99 Kenny Street Wollongong NSW 2500

CLIENT: **ERM** TURNAROUND REQUIREMENTS: Standard TAT (List due date); Non Standard or urgent TAT (List due date);
 OFFICE: **Sydney** (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)
 PROJECT: **Project Symphony** ALS QUOTE NO.: **SY794/13**
 ORDER NUMBER: **0224198** SITE: **BAYSWATER / LIDDELL**
 PROJECT MANAGER: CONTACT PH: COC SEQUENCE NUMBER (Circle)
 COC: 1 2 3 4 5 6 7
 OF: 1 2 3 4 5 6 7

SAMPLER: **Joshua Kead** SAMPLER MOBILE: RELINQUISHED BY: **Joshua Kead** RECEIVED BY: **Frank ACS**
 COC emailed to ALS? (YES / NO) EDD FORMAT (or default): DATE/TIME: **4-12-13 1900**
 Email Reports to (will default to PM if no other addresses are listed): **John Eady, symphony.manga@erm.com.au**
 Email Invoice to (will default to PM if no other addresses are listed): DATE/TIME: RECEIVED BY:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

1
2
3
4
5
6
7
8
9
10
11

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			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 (field filtered bottle required).										Additional Information			
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below)	(refer to)	TOTAL CONTAINERS	Sz 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 TRHC6- C40/BTEX/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 OC analysis etc.	
-	LU-MW02-0.1		SOIL				X		X										
-	LU-SB01-0.1						X		X										
-	Lt-MW01-0.1						X		X										
-	DO1-2/12/13-JK						X		X										
-	TO1-2/12/13-JK						X		X										Send to Envirolab
-	LU-SB02-0.1						X		X										
-	LU-SB04-0.1						X		X										
-	LQ-MW01-0.5						X		X										
-	LO-MW04-0.5						X		X	X	X								
-	LQ-MW03-0.5						X		X										
-	RO1-2/12/13-JK						X		X										Brep, Trk, Mealy
-	Trip Blank Spike																		

Environmental Division
 Sydney
 Work Order
ES1326685

 Telephone: +61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Od Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved Plastic; Airfree = Unpreserved Plastic
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfree Unpreserved Vial SG = Sulfuric Preserved Amber Glass; B = HCl Preserved Plastic; HS = HCl Preserved Specimen Bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Relinquished By / Date: _____
 Connote / Courier: _____
 WO No: **ES1326685**
 Attach By PO / Internal Sheet: _____

SAMPLE RECEIPT NOTIFICATION (SRN)**Comprehensive Report**Work Order : **ES1326685**Amendment : **1**Client : **ENVIRO RESOURCES MANAGEMENT** Laboratory : Environmental Division SydneyContact : MR JOE FERRING Contact : Barbara Hanna
Address : GRND FLOOR, 33 SAUNDERS STREET Address : 277-289 Woodpark Road Smithfield
PYRMONT NSW AUSTRALIA 2009 NSW Australia 2164E-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 : 0224198

C-O-C number : ----

Quote number : ES2013ENVRES0369 (SY/794/13)

Site : LIDDELL

Sampler : JK QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 04-DEC-2013

Issue Date : 08-JAN-2014 11:10

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 : 13

Security Seal : Intact. No. of samples analysed : 13

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_2/12/13_JK to be forwarded to Envirolab.
- **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 - EP066 (solids) Polychlorinated Biphenyls by GC/MS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - S-02 & Metals (incl. Digestion)	SOIL - S-18 (NO MOIST)	TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-24 TRH/BTEXN/PAH + Phenols
ES1326685-001	[02-DEC-2013]	LU_MW02_0.1			✓			✓
ES1326685-002	[02-DEC-2013]	LU_SB01_0.1			✓			✓
ES1326685-003	[02-DEC-2013]	LI_MW01_0.1			✓			✓
ES1326685-004	[02-DEC-2013]	D01_2/12/13_JK			✓			✓
ES1326685-005	[02-DEC-2013]	LU_SB02_0.1			✓			✓
ES1326685-006	[02-DEC-2013]	LU_SB04_0.1			✓			✓
ES1326685-007	[02-DEC-2013]	LG_MW01_0.5			✓			✓
ES1326685-008	[02-DEC-2013]	LO_MW14_0.5	✓	✓	✓			✓
ES1326685-009	[02-DEC-2013]	LG_MW03_0.5			✓			✓
ES1326685-011	[02-DEC-2013]	TRIP BLANK				✓		
ES1326685-012	[02-DEC-2013]	TRIP SPIKE				✓		
ES1326685-013	[02-DEC-2013]	TSC				✓		

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-05T TRH/BTEXN/8 Metals (Total)
ES1326685-010	[02-DEC-2013]	R01_21213_JK	✓

Proactive Holding Time Report

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



Requested Deliverables

MR JOE 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 : ES1326685

Page : 1 of 14

Amendment : 1

Client : ENVIRO RESOURCES MANAGEMENT

Laboratory : Environmental Division Sydney

Contact : MR JOE FERRING

Contact : Barbara Hanna

Address : GRND FLOOR, 33 SAUNDERS STREET
PYRMONT NSW AUSTRALIA 2009

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 : 0224198

C-O-C number : ----

Date Samples Received : 04-DEC-2013

Sampler : JK

Issue Date : 08-JAN-2014

Site : LIDDELL

No. of samples received : 13

Quote number : SY/794/13

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



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.

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.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

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

Client sampling date / time

				LU_MW02_0.1	LU_SB01_0.1	LI_MW01_0.1	D01_2/12/13_JK	LU_SB02_0.1
				[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]
Compound	CAS Number	LOR	Unit	ES1326685-001	ES1326685-002	ES1326685-003	ES1326685-004	ES1326685-005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	17.8	13.5	14.2	11.4	9.5
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	17	7	8	9	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	18	14	15	16	14
Copper	7440-50-8	5	mg/kg	19	10	18	16	12
Lead	7439-92-1	5	mg/kg	18	12	15	14	6
Nickel	7440-02-0	2	mg/kg	29	19	12	12	22
Zinc	7440-66-6	5	mg/kg	78	51	57	56	44
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

				LU_MW02_0.1	LU_SB01_0.1	LI_MW01_0.1	D01_2/12/13_JK	LU_SB02_0.1
				[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]
Compound	CAS Number	LOR	Unit	ES1326685-001	ES1326685-002	ES1326685-003	ES1326685-004	ES1326685-005
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	<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

				LU_MW02_0.1	LU_SB01_0.1	LI_MW01_0.1	D01_2/12/13_JK	LU_SB02_0.1
				[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]
Compound	CAS Number	LOR	Unit	ES1326685-001	ES1326685-002	ES1326685-003	ES1326685-004	ES1326685-005
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	%	96.8	82.5	81.0	74.6	85.5
2-Chlorophenol-D4	93951-73-6	0.1	%	102	86.3	88.1	88.5	88.6
2.4.6-Tribromophenol	118-79-6	0.1	%	85.3	77.2	81.3	86.0	91.1
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	114	94.4	93.9	103	101
Anthracene-d10	1719-06-8	0.1	%	101	88.0	78.6	92.0	84.1
4-Terphenyl-d14	1718-51-0	0.1	%	114	95.1	84.0	100	93.3
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	86.0	86.6	88.7	89.2	89.0
Toluene-D8	2037-26-5	0.1	%	95.8	90.0	99.7	90.1	103
4-Bromofluorobenzene	460-00-4	0.1	%	90.5	89.5	92.1	93.6	95.4



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				LU_SB04_0.1	LG_MW01_0.5	LO_MW14_0.5	LG_MW03_0.5	TRIP BLANK
				[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]
Compound	CAS Number	LOR	Unit	ES1326685-006	ES1326685-007	ES1326685-008	ES1326685-009	ES1326685-011
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	12.5	17.7	18.0	12.0	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	7	15	12	12	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	2	----
Chromium	7440-47-3	2	mg/kg	13	10	15	32	----
Copper	7440-50-8	5	mg/kg	11	17	13	49	----
Lead	7439-92-1	5	mg/kg	7	20	19	40	----
Nickel	7440-02-0	2	mg/kg	35	28	22	39	----
Zinc	7440-66-6	5	mg/kg	43	88	73	386	----
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	----	----
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

				LU_SB04_0.1	LG_MW01_0.5	LO_MW14_0.5	LG_MW03_0.5	TRIP BLANK
				[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]
Compound	CAS Number	LOR	Unit	ES1326685-006	ES1326685-007	ES1326685-008	ES1326685-009	ES1326685-011
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

				LU_SB04_0.1	LG_MW01_0.5	LO_MW14_0.5	LG_MW03_0.5	TRIP BLANK
				[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]
Compound	CAS Number	LOR	Unit	ES1326685-006	ES1326685-007	ES1326685-008	ES1326685-009	ES1326685-011
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	----
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	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LU_SB04_0.1	LG_MW01_0.5	LO_MW14_0.5	LG_MW03_0.5	TRIP BLANK
				[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]
Compound	CAS Number	LOR	Unit	ES1326685-006	ES1326685-007	ES1326685-008	ES1326685-009	ES1326685-011
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	----
^ 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	140	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	140	----
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	190	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	190	----
^ >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



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LU_SB04_0.1	LG_MW01_0.5	LO_MW14_0.5	LG_MW03_0.5	TRIP BLANK
				[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]	[02-DEC-2013]
Compound	CAS Number	LOR	Unit	ES1326685-006	ES1326685-007	ES1326685-008	ES1326685-009	ES1326685-011
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	%	----	----	62.6	----	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	77.6	----	----
Toluene-D8	2037-26-5	0.1	%	----	----	109	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	93.1	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	91.3	87.1	85.4	68.6	----
2-Chlorophenol-D4	93951-73-6	0.1	%	98.6	90.8	86.2	87.2	----
2,4,6-Tribromophenol	118-79-6	0.1	%	81.2	84.2	78.6	75.8	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	106	109	101	104	----
Anthracene-d10	1719-06-8	0.1	%	90.8	88.2	94.9	87.4	----
4-Terphenyl-d14	1718-51-0	0.1	%	101	81.1	105	104	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	89.4	89.0	88.0	88.4	94.4
Toluene-D8	2037-26-5	0.1	%	98.1	97.4	91.7	87.5	101
4-Bromofluorobenzene	460-00-4	0.1	%	94.1	92.7	75.2	86.3	97.7



Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Client sample ID

Client sampling date / time

				TRIP SPIKE	TSC	---	---	---
				[02-DEC-2013]	[02-DEC-2013]	---	---	---
Compound	CAS Number	LOR	Unit	ES1326685-012	ES1326685-013	---	---	---
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	---	10	mg/kg	90	113	---	---	---
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	99	124	---	---	---
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	59	78	---	---	---
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	0.7	1.0	---	---	---
Toluene	108-88-3	0.5	mg/kg	21.6	23.6	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	2.2	2.5	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	11.5	13.7	---	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	4.3	5.0	---	---	---
Sum of BTEX	---	0.2	mg/kg	40.3	45.8	---	---	---
Total Xylenes	1330-20-7	0.5	mg/kg	15.8	18.7	---	---	---
Naphthalene	91-20-3	1	mg/kg	<1	<1	---	---	---
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	88.8	90.6	---	---	---
Toluene-D8	2037-26-5	0.1	%	88.0	95.6	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	91.9	93.4	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_21213_JK	---	---	---	---
				[02-DEC-2013]	---	---	---	---
Compound	CAS Number	LOR	Unit	ES1326685-010	---	---	---	---
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	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	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	---	---	---	---
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	---	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	---	---	---	---
^ Sum of BTEX	---	1	µg/L	<1	---	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	---	---	---	---



Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

R01_21213_JK

Client sampling date / time

[02-DEC-2013]

Compound	CAS Number	LOR	Unit	ES1326685-010	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	92.7	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	101	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	102	----	----	----	----



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

QUALITY CONTROL REPORT

Work Order	: ES1326685	Page	: 1 of 19
Amendment	: 1		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOE FERRING	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	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	: LIDDELL		
C-O-C number	: ----	Date Samples Received	: 04-DEC-2013
Sampler	: JK	Issue Date	: 08-JAN-2014
Order number	: 0224198		
Quote number	: SY/794/13	No. of samples received	: 13
		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 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>
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: 3201224)									
ES1326681-008	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	22.9	22.4	2.4	0% - 20%
ES1326683-009	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	10.6	10.4	2.5	0% - 50%
EA055: Moisture Content (QC Lot: 3201225)									
ES1326685-007	LG_MW01_0.5	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
EG005T: Total Metals by ICP-AES (QC Lot: 3200326)									
ES1326684-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	31	30	0.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	2	2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	22	20	11.1	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	8	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	7	8	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	21	20	5.5	No Limit
ES1326686-005	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	25	24	7.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	23	19	20.0	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	8	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	23	20	11.3	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	18	15	19.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	61	52	16.4	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3200327)									
ES1326684-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326686-005	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3199165)									
ES1326381-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326683-003	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	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



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: 3199459) - continued									
ES1326681-005	Anonymous	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
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



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: 3199459) - continued									
ES1326681-005	Anonymous	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
		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: 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	LU_SB04_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



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	LU_SB04_0.1	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: 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	LU_SB04_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



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: 3197951) - continued										
ES1326685-006	LU_SB04_0.1	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: 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	LU_SB04_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 Petroleum Hydrocarbons (QC Lot: 3198050)										
ES1326683-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1326685-002	LU_SB01_0.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	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 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	LU_SB04_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	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3198050)										
ES1326683-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1326685-002	LU_SB01_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: 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: BTEXN (QC Lot: 3198050)										
ES1326683-001	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	
ES1326685-002	LU_SB01_0.1	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: 3198050) - continued									
ES1326685-002	LU_SB01_0.1	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: 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	108-38-3 106-42-3	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
ES1326681-009	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 (%)
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: Chromium	7440-47-3	0.001	mg/L	0.084	0.082	3.4	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: Nickel	7440-02-0	0.001	mg/L	1.29	1.25	3.2	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	4.96	4.96	0.2	0% - 20%
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: Chromium	7440-47-3	0.001	mg/L	0.003	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: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.068	0.066	2.0	0% - 50%
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



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: 3200838) - continued									
ES1326680-011	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: 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: 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	108-38-3 106-42-3	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
ES1326487-010	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



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: 3200326)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	119	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	110	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	113	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	115	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	111	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	118	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: 3200327)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	74.1	66	112	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3199165)									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	88.3	57.4	117	
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	
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	



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: 3199459) - continued									
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	
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	



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: 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: 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	



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)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3197951) - continued									
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	
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: 3198050)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	88.5	68.4	128	
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 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: 3198050)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	88.6	68.4	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: BTEXN (QCLot: 3198050)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	81.3	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	90.2	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	83.0	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	81.6	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	88.7	62	138	
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	



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: 3199458) - continued									
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	81.4	60	120	
	106-42-3								
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	

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: 3199919)									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.2	79	121	
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: 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: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	103	83	117	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	91.4	76	118	
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	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3200853)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	97.5	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	96.7	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	99.0	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: 3200853)									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	88.8	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	88.8	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	100	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	SpikeRecovery(%) MS	Recovery Limits (%)	
						Low	High
EG005T: Total Metals by ICP-AES (QCLot: 3200326)							
ES1326684-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	114	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	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	107	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	107	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	104	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3200327)							
ES1326684-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	73.9	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3199165)							
ES1326381-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	106	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
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: 3198050)							
ES1326683-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	106	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199458)							



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: 3199458) - continued							
ES1326681-005	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	106	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: 3198050)							
ES1326683-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	104	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: 3198050)							
ES1326683-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	85.1	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	89.0	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	83.2	70	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	82.8	70	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	80.4	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	82.3	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	2.5 mg/kg	86.0	70	130
			106-42-3				
		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

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: 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: Copper	7440-50-8	1 mg/L	106	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	116	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	99.0	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	104	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3200838)							



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: 3200838) - continued								
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	25 µg/L	110	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	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						
				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: 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	----	----



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: 3197951) - continued											
ES1326596-001	Anonymous	EP075(SIM): Pyrene	129-00-0	10 mg/kg	94.9	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3198050)											
ES1326683-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	106	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3198050)											
ES1326683-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	104	----	70	130	----	----	
EP080: BTEXN (QCLot: 3198050)											
ES1326683-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	85.1	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	89.0	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	83.2	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	82.8	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	80.4	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	82.3	----	70	130	----	----	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3199165)											
ES1326381-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	106	----	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 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	2.5 mg/kg	86.0	----	70	130	----	----	
			106-42-3								
		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	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3200326)											
ES1326684-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	114	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	104	----	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: 3200326) - continued										
ES1326684-001	Anonymous	EG005T: Lead	7439-92-1	125 mg/kg	107	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	107	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	104	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3200327)										
ES1326684-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	73.9	----	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)											
ES1326315-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	111	----	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: Copper	7440-50-8	1 mg/L	106	----	70	130	----	----	
		EG020A-T: Lead	7439-92-1	1 mg/L	116	----	70	130	----	----	
		EG020A-T: Nickel	7440-02-0	1 mg/L	99.0	----	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	25 µg/L	110	----	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	112	----	70	130	----	----	

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326685	Page	: 1 of 9
Amendment	: 1		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOE FERRING	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
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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	: LIDDELL		
C-O-C number	: ---	Date Samples Received	: 04-DEC-2013
Sampler	: JK	Issue Date	: 08-JAN-2014
Order number	: 0224198		
Quote number	: SY/794/13	No. of samples received	: 13
		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 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) LU_MW02_0.1, LI_MW01_0.1, LU_SB02_0.1, LG_MW01_0.5, LG_MW03_0.5	LU_SB01_0.1, D01_2/12/13_JK, LU_SB04_0.1, LO_MW14_0.5,	02-DEC-2013	----	----	----	09-DEC-2013	16-DEC-2013	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T) LU_MW02_0.1, LI_MW01_0.1, LU_SB02_0.1, LG_MW01_0.5, LG_MW03_0.5	LU_SB01_0.1, D01_2/12/13_JK, LU_SB04_0.1, LO_MW14_0.5,	02-DEC-2013	09-DEC-2013	31-MAY-2014	✓	09-DEC-2013	31-MAY-2014	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T) LU_MW02_0.1, LI_MW01_0.1, LU_SB02_0.1, LG_MW01_0.5, LG_MW03_0.5	LU_SB01_0.1, D01_2/12/13_JK, LU_SB04_0.1, LO_MW14_0.5,	02-DEC-2013	09-DEC-2013	30-DEC-2013	✓	10-DEC-2013	30-DEC-2013	✓
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066) LO_MW14_0.5		02-DEC-2013	09-DEC-2013	16-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Soil Glass Jar - Unpreserved (EP071) LU_MW02_0.1, LI_MW01_0.1, LU_SB02_0.1, LG_MW01_0.5, LG_MW03_0.5	LU_SB01_0.1, D01_2/12/13_JK, LU_SB04_0.1, LO_MW14_0.5,	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
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074) LO_MW14_0.5	02-DEC-2013	---	09-DEC-2013	----	09-DEC-2013	09-DEC-2013	✓
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074) LO_MW14_0.5	02-DEC-2013	---	09-DEC-2013	----	09-DEC-2013	09-DEC-2013	✓
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074) LO_MW14_0.5	02-DEC-2013	---	09-DEC-2013	----	09-DEC-2013	09-DEC-2013	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074) LO_MW14_0.5	02-DEC-2013	---	09-DEC-2013	----	09-DEC-2013	09-DEC-2013	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074) LO_MW14_0.5	02-DEC-2013	---	09-DEC-2013	----	09-DEC-2013	09-DEC-2013	✓
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074) LO_MW14_0.5	02-DEC-2013	---	09-DEC-2013	----	09-DEC-2013	09-DEC-2013	✓
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved (EP074) LO_MW14_0.5	02-DEC-2013	---	09-DEC-2013	----	09-DEC-2013	09-DEC-2013	✓
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074) LO_MW14_0.5	02-DEC-2013	---	09-DEC-2013	----	09-DEC-2013	09-DEC-2013	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) LU_MW02_0.1, LU_SB01_0.1, LI_MW01_0.1, D01_2/12/13_JK, LU_SB02_0.1, LU_SB04_0.1, LG_MW01_0.5, LO_MW14_0.5, LG_MW03_0.5	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)) LU_MW02_0.1, LU_SB01_0.1, LI_MW01_0.1, D01_2/12/13_JK, LU_SB02_0.1, LU_SB04_0.1, LG_MW01_0.5, LO_MW14_0.5, LG_MW03_0.5	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) LO_MW14_0.5	02-DEC-2013	---	16-DEC-2013	----	09-DEC-2013	16-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) LU_MW02_0.1, LU_SB01_0.1, LI_MW01_0.1, D01_2/12/13_JK, LU_SB02_0.1, LU_SB04_0.1, LG_MW01_0.5, LG_MW03_0.5, TRIP BLANK, TRIP SPIKE, TSC	02-DEC-2013	06-DEC-2013	16-DEC-2013	✓	09-DEC-2013	16-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Soil Glass Jar - Unpreserved (EP080) LO_MW14_0.5	02-DEC-2013	---	16-DEC-2013	----	09-DEC-2013	16-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) LU_MW02_0.1, LU_SB01_0.1, LI_MW01_0.1, D01_2/12/13_JK, LU_SB02_0.1, LU_SB04_0.1, LG_MW01_0.5, LG_MW03_0.5, TRIP BLANK, TRIP SPIKE, TSC	02-DEC-2013	06-DEC-2013	16-DEC-2013	✓	09-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_21213_JK	02-DEC-2013	07-DEC-2013	31-MAY-2014	✓	09-DEC-2013	31-MAY-2014	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_21213_JK	02-DEC-2013	----	----	----	09-DEC-2013	30-DEC-2013	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) R01_21213_JK	02-DEC-2013	09-DEC-2013	09-DEC-2013	✓	10-DEC-2013	18-JAN-2014	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) R01_21213_JK	02-DEC-2013	09-DEC-2013	16-DEC-2013	✓	10-DEC-2013	16-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Amber VOC Vial - Sulfuric Acid (EP080) R01_21213_JK	02-DEC-2013	09-DEC-2013	16-DEC-2013	✓	10-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)							
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	19	10.5	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	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	14	14.3	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	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)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	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	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	14	7.1	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	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)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	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	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	14	7.1	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	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)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	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	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	14	7.1	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	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: **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	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
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
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	18	5.6	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)							
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	18	5.6	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	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 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
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)
TPH - Semivolatle 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
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
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

- 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.
-

CHAIN OF CUSTODY

ALS LABORATORY:
 21 Bluna Road, Roseville SA 5125
 Ph: 08 8530 0000 E: als@als.com.au

ALS SYDNEY OFFICE:
 22 Strand Street, Sydney NSW 2000
 Ph: 02 9210 1212 E: sydney@als.com.au

ALS PROJECT: Project Symphony

CLIENT: ERM

OFFICE: Sydney

PROJECT: Project Symphony

ORDER NUMBER: 0224198

PROJECT MANAGER: J. Feiring

SAMPLER: T. Armani

COC emailed to ALS? (YES / NO): YES

Relinquished to (will default to PM if no other addresses are listed): Symphony MacKen (erm.com)

Relinquished by (DATE/TIME): T. Armani (4.12.13 1900)

Relinquished by (DATE/TIME): T. Armani (4.12.13 1900)

Relinquished by (DATE/TIME): T. Armani (4.12.13 1900)

TURNAROUND REQUIREMENTS:
 Standard TAT (List due date): Standard TAT (List due date)
 Non-Standard or urgent TAT (List due date):

FOR LABORATORY USE ONLY: (Circle)
 Contain Seal (Intact): Yes No
 Free ice / frozen ice bricks present upon receipt? Yes No
 Random Sample Temperature on Receipt: °C

FOR LABORATORY USE ONLY: (Circle)
 COC SEQUENCE NUMBER (Circle): 1 2 3 4 5 6 7
 OF: 1 2 3 4 5 6 7

RECEIVED BY: T. Armani
DATE/TIME: 4.12.13 1900

RECEIVED BY: T. Armani
DATE/TIME: 4.12.13 1900

RECEIVED BY: T. Armani
DATE/TIME: 4.12.13 1900

LABORATORY USE ONLY: (Circle)
 COC SEQUENCE NUMBER (Circle): 1 2 3 4 5 6 7
 OF: 1 2 3 4 5 6 7


RECEIVED BY: T. Armani
DATE/TIME: 4.12.13 1900

RECEIVED BY: T. Armani
DATE/TIME: 4.12.13 1900

RECEIVED BY: T. Armani
DATE/TIME: 4.12.13 1900

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	CONTAINER INFORMATION (refer to TOTAL CONTAINERS)	ANALYSIS REQUIRED INCLUDING SUITES (NO. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (filtered bottle required).	Additional Information
1	LP MW06-0.1	2.12.13	SOIL		1	S-24 TRH(C6) C40/BTEXN, PAH, Phenols VOC Target Scan PCB PH (1:5) Exchangeable Cations (CD07) PFOS/PFOA Asbestos (absence/presence) Particle Sizing to 75µm (Sieve) Organic Matter plus Carbon (EP04)	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
2	LP SB14-0.1				1	S-24 TRH(C6) C40/BTEXN, PAH, Phenols VOC Target Scan PCB PH (1:5) Exchangeable Cations (CD07) PFOS/PFOA Asbestos (absence/presence) Particle Sizing to 75µm (Sieve) Organic Matter plus Carbon (EP04)	
3	LP SB13-0.1				1	S-24 TRH(C6) C40/BTEXN, PAH, Phenols VOC Target Scan PCB PH (1:5) Exchangeable Cations (CD07) PFOS/PFOA Asbestos (absence/presence) Particle Sizing to 75µm (Sieve) Organic Matter plus Carbon (EP04)	
4	LS MW01-0.1				1	S-24 TRH(C6) C40/BTEXN, PAH, Phenols VOC Target Scan PCB PH (1:5) Exchangeable Cations (CD07) PFOS/PFOA Asbestos (absence/presence) Particle Sizing to 75µm (Sieve) Organic Matter plus Carbon (EP04)	
5	LP MW06-1.0				1	S-24 TRH(C6) C40/BTEXN, PAH, Phenols VOC Target Scan PCB PH (1:5) Exchangeable Cations (CD07) PFOS/PFOA Asbestos (absence/presence) Particle Sizing to 75µm (Sieve) Organic Matter plus Carbon (EP04)	
6	LP MW06-3.0				1	S-24 TRH(C6) C40/BTEXN, PAH, Phenols VOC Target Scan PCB PH (1:5) Exchangeable Cations (CD07) PFOS/PFOA Asbestos (absence/presence) Particle Sizing to 75µm (Sieve) Organic Matter plus Carbon (EP04)	
7	LP SB14-0.5				1	S-24 TRH(C6) C40/BTEXN, PAH, Phenols VOC Target Scan PCB PH (1:5) Exchangeable Cations (CD07) PFOS/PFOA Asbestos (absence/presence) Particle Sizing to 75µm (Sieve) Organic Matter plus Carbon (EP04)	
8	LP SB14-2.8				1	S-24 TRH(C6) C40/BTEXN, PAH, Phenols VOC Target Scan PCB PH (1:5) Exchangeable Cations (CD07) PFOS/PFOA Asbestos (absence/presence) Particle Sizing to 75µm (Sieve) Organic Matter plus Carbon (EP04)	
9	LP SB13-0.5				1	S-24 TRH(C6) C40/BTEXN, PAH, Phenols VOC Target Scan PCB PH (1:5) Exchangeable Cations (CD07) PFOS/PFOA Asbestos (absence/presence) Particle Sizing to 75µm (Sieve) Organic Matter plus Carbon (EP04)	
10	LP SB13-3.0				1	S-24 TRH(C6) C40/BTEXN, PAH, Phenols VOC Target Scan PCB PH (1:5) Exchangeable Cations (CD07) PFOS/PFOA Asbestos (absence/presence) Particle Sizing to 75µm (Sieve) Organic Matter plus Carbon (EP04)	
11	LS MW01-0.5				1	S-24 TRH(C6) C40/BTEXN, PAH, Phenols VOC Target Scan PCB PH (1:5) Exchangeable Cations (CD07) PFOS/PFOA Asbestos (absence/presence) Particle Sizing to 75µm (Sieve) Organic Matter plus Carbon (EP04)	
12	LS MW01-3.0				1	S-24 TRH(C6) C40/BTEXN, PAH, Phenols VOC Target Scan PCB PH (1:5) Exchangeable Cations (CD07) PFOS/PFOA Asbestos (absence/presence) Particle Sizing to 75µm (Sieve) Organic Matter plus Carbon (EP04)	

Environmental Division
 Sydney
 Work Order
ES1326686



Telephone: +61-2-8784 8555

WATER CONTAINER CODES: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; S1 = Sodium Hydroxide/Ca Preserved; S = Sodium Hydroxide/Ca Preserved; AQ = Amber Glass Unpreserved; AH = Airtight Unpreserved Plastic
 V = VOA Vial HCl Preserved; VB = VOA Vial Sulfuric Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airtight Unpreserved Vial SG = Sulfuric Preserved Plastic; H = HCl Preserved Plastic; HS = HCl Preserved Special Ion Bottle; SP = Sulfuric 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; U = Unpreserved Bag

SAMPLE RECEIPT NOTIFICATION (SRN)**Comprehensive Report**

Work Order	: ES1326686		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOE FERRING	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	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	: LIDDELL		
Sampler	: TA		

Dates

Date Samples Received	: 04-DEC-2013	Issue Date	: 06-DEC-2013 16:41
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	: 12
Security Seal	: Intact.	No. of samples analysed	: 8

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.**
- **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 - ASB-SOL (Subcontracted) Asbestos - Count (Solid)	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-24 TRH/BTEX/PAH + Phenols
ES1326686-001	02-DEC-2013 15:00	LP_MW06_0.1	✓		
ES1326686-002	02-DEC-2013 15:00	LP_SB14_0.1	✓		
ES1326686-003	02-DEC-2013 15:00	LP_SB13_0.1	✓		
ES1326686-004	02-DEC-2013 15:00	LS_MW01_0.1	✓		
ES1326686-005	02-DEC-2013 15:00	LP_MW06_1.0		✓	✓
ES1326686-006	02-DEC-2013 15:00	LP_MW06_3.0		✓	✓
ES1326686-007	02-DEC-2013 15:00	LP_SB14_0.5		✓	✓
ES1326686-008	02-DEC-2013 15:00	LP_SB14_2.8		✓	✓
ES1326686-009	02-DEC-2013 15:00	LP_SB13_0.5		✓	✓
ES1326686-010	02-DEC-2013 15:00	LP_SB13_3.0		✓	✓
ES1326686-011	02-DEC-2013 15:00	LS_MW01_0.5		✓	✓
ES1326686-012	02-DEC-2013 15:00	LS_MW01_3.0		✓	✓

Proactive Holding Time Report

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

Requested Deliverables

MR JOE 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 : ES1326686 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOE FERRING Address : GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009 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 : TA Site : LIDDELL 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 : 04-DEC-2013 Issue Date : 10-DEC-2013 No. of samples received : 12 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.

Signatories	Position	Accreditation Category
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 Zinc on sample ES1326688 #009. Results have been confirmed by re-extraction and re-analysis.**
-



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LP_MW06_1.0	LP_MW06_3.0	LP_SB14_0.5	LP_SB14_2.8	LP_SB13_0.5
				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	ES1326686-005	ES1326686-006	ES1326686-007	ES1326686-008	ES1326686-009
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	22.5	12.6	21.3	12.4	22.1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	8	10	9	<5	10
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	25	19	24	14	36
Copper	7440-50-8	5	mg/kg	23	24	24	14	31
Lead	7439-92-1	5	mg/kg	18	25	16	27	22
Nickel	7440-02-0	2	mg/kg	23	14	24	7	42
Zinc	7440-66-6	5	mg/kg	61	72	73	31	97
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

				LP_MW06_1.0	LP_MW06_3.0	LP_SB14_0.5	LP_SB14_2.8	LP_SB13_0.5
				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	ES1326686-005	ES1326686-006	ES1326686-007	ES1326686-008	ES1326686-009
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

				LP_MW06_1.0	LP_MW06_3.0	LP_SB14_0.5	LP_SB14_2.8	LP_SB13_0.5
				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	ES1326686-005	ES1326686-006	ES1326686-007	ES1326686-008	ES1326686-009
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	%	81.8	84.6	78.4	73.7	75.4
2-Chlorophenol-D4	93951-73-6	0.1	%	93.9	95.2	99.4	92.1	95.0
2,4,6-Tribromophenol	118-79-6	0.1	%	104	109	116	114	110
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	95.3	99.1	116	103	112
Anthracene-d10	1719-06-8	0.1	%	88.9	92.2	95.6	95.0	91.8
4-Terphenyl-d14	1718-51-0	0.1	%	85.1	89.6	92.7	91.9	88.8
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	88.0	82.6	85.8	82.4	87.9
Toluene-D8	2037-26-5	0.1	%	88.4	79.6	82.3	82.2	93.1
4-Bromofluorobenzene	460-00-4	0.1	%	91.9	83.8	84.4	83.5	92.6



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LP_SB13_3.0	LS_MW01_0.5	LS_MW01_3.0	---	---
				02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1326686-010	ES1326686-011	ES1326686-012	---	---
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	---	1.0	%	19.3	21.9	13.3	---	---
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	82	8	9	---	---
Cadmium	7440-43-9	1	mg/kg	3	<1	<1	---	---
Chromium	7440-47-3	2	mg/kg	21	31	14	---	---
Copper	7440-50-8	5	mg/kg	28	24	19	---	---
Lead	7439-92-1	5	mg/kg	163	13	8	---	---
Nickel	7440-02-0	2	mg/kg	17	39	5	---	---
Zinc	7440-66-6	5	mg/kg	72	61	28	---	---
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

				LP_SB13_3.0	LS_MW01_0.5	LS_MW01_3.0	----	----
				02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1326686-010	ES1326686-011	ES1326686-012	----	----
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)

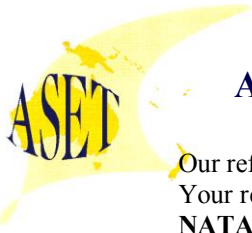
Client sample ID

				LP_SB13_3.0	LS_MW01_0.5	LS_MW01_3.0	----	----
				02-DEC-2013 15:00	02-DEC-2013 15:00	02-DEC-2013 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1326686-010	ES1326686-011	ES1326686-012	----	----
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	%	79.9	74.5	77.8	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	94.3	92.7	93.4	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	110	105	104	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	97.4	95.2	104	----	----
Anthracene-d10	1719-06-8	0.1	%	90.4	87.3	97.2	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	86.2	83.8	93.6	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	80.7	84.1	76.7	----	----
Toluene-D8	2037-26-5	0.1	%	79.2	85.8	73.5	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	82.0	86.1	77.3	----	----



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



Our ref : ASET36459/ 39639 / 1 - 4

Your ref : ES1326686

NATA Accreditation No: 14484

7 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 four samples, forwarded by Australian Laboratory Services Pty Ltd on 7 December 2013, for analysis for asbestos.

1. Introduction: Four 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. ASET36459 / 39639 / 1. ES1326686 - 001 - LP - MW06 - 0.1.**
Approx dimensions 10.0 cm x 7.0 cm x 4.65 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. ASET36459 / 39639 / 2. ES1326686 - 002 - LP - SB14 - 0.1.
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.
No asbestos detected.

Sample No. 3. ASET36459 / 39639 / 3. ES1326686 - 003 - LP - SB13 - 0.1.
Approx dimensions 10.0 cm x 7.0 cm x 4.5 cm
The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster and brick like material.
No asbestos detected.

The logo for ASET (Asbestos Environmental Services Trust) features the word "ASET" in a bold, blue, serif font. The letters are set against a yellow background that is shaped like a stylized map of New Zealand.

Sample No. 4. ASET36459 / 39639 / 4. ES1326686 - 004 - LS - MW01 - 0.1.

Approx dimensions 8.0 cm x 8.0 cm x 4.75 cm

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster.

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 large loop at the beginning.

**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	: ES1326686	Page	: 1 of 11
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOE FERRING	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	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	: LIDDELL	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 10-DEC-2013
Sampler	: TA	No. of samples received	: 12
Order number	: 0224198	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.

<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.

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: 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
EG005T: Total Metals by ICP-AES (QC Lot: 3200326)									
ES1326684-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	31	30	0.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	2	2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	22	20	11.1	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	8	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	7	8	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	21	20	5.5	No Limit
ES1326686-005	LP_MW06_1.0	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	25	24	7.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	23	19	20.0	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	8	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	23	20	11.3	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	18	15	19.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	61	52	16.4	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 3201217)									
ES1326161-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	18	18	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: Zinc	7440-66-6	5	mg/kg	21	20	0.0	No Limit
ES1326688-009	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	4	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	5	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	12	12	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	8	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	138	181	# 26.7	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3200327)									
ES1326684-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326686-005	LP_MW06_1.0	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: 3201218)									
ES1326161-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326688-009	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: 3199164)									
ES1326686-005	LP_MW06_1.0	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
ES1326688-007	Anonymous	EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		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	LP_MW06_1.0	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



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	LP_MW06_1.0	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	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: 3199163)									
ES1326686-005	LP_MW06_1.0	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
ES1326688-007	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: 3199531)									
ES1326686-005	LP_MW06_1.0	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	LP_MW06_1.0	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	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	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: 3199163) - continued									
ES1326688-007	Anonymous	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: 3199531)									
ES1326686-005	LP_MW06_1.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 3199531)									
ES1326686-005	LP_MW06_1.0	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	108-38-3 106-42-3	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: 3200326)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	119	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	110	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	113	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	115	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	111	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	118	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	112	81	133	
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: 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: 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: 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	105	81	133	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3200327)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	74.1	66	112	
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)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	98.0	80	124	



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): 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: 3199531)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	90.1	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: 3199531)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	91.0	68.4	128	
EP080: BTEXN (QCLot: 3199531)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	84.8	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	88.1	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	84.7	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	83.3	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	87.2	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	89.0	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(%) MS	Recovery Limits (%)	
					Low	High	
EG005T: Total Metals by ICP-AES (QCLot: 3200326)							
ES1326684-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	114	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	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	107	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	107	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	104	70	130
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: Zinc	7440-66-6	125 mg/kg	104	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3200327)							
ES1326684-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	73.9	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
EP075(SIM)A: Phenolic Compounds (QCLot: 3199164)							
ES1326686-005	LP_MW06_1.0	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	LP_MW06_1.0	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	LP_MW06_1.0	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: 3199531)							
ES1326686-005	LP_MW06_1.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	121	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199163)							



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	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199163) - continued								
ES1326686-005	LP_MW06_1.0	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: 3199531)								
ES1326686-005	LP_MW06_1.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	117	70	130	
EP080: BTEXN (QCLot: 3199531)								
ES1326686-005	LP_MW06_1.0	EP080: Benzene	71-43-2	2.5 mg/kg	96.3	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	98.3	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	96.5	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	93.9	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	95.8	70	130	
	91-20-3	2.5 mg/kg	96.6	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: 3199163)										
ES1326686-005	LP_MW06_1.0	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	LP_MW06_1.0	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	LP_MW06_1.0	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	LP_MW06_1.0	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	----	----



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: 3199531)											
ES1326686-005	LP_MW06_1.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	121	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199531)											
ES1326686-005	LP_MW06_1.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	117	----	70	130	----	----	
EP080: BTEXN (QCLot: 3199531)											
ES1326686-005	LP_MW06_1.0	EP080: Benzene	71-43-2	2.5 mg/kg	96.3	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	98.3	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	96.5	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	93.9	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	95.8	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	96.6	----	70	130	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3200326)											
ES1326684-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	114	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	----	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	107	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	107	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	125 mg/kg	104	----	70	130	----	----	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3200327)											
ES1326684-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	73.9	----	70	130	----	----	
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: 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	----	----	

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326686	Page	: 1 of 6
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOE FERRING	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	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	: LIDDELL	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 10-DEC-2013
Sampler	: TA	No. of samples received	: 12
Order number	: 0224198	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)								
LP_MW06_1.0, LP_SB14_0.5, LP_SB13_0.5, LS_MW01_0.5	LP_MW06_3.0, LP_SB14_2.8, LP_SB13_3.0, LS_MW01_3.0	02-DEC-2013	----	----	----	09-DEC-2013	16-DEC-2013	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
LP_MW06_1.0, LP_SB14_0.5, LP_SB13_0.5	LP_MW06_3.0, LP_SB14_2.8, LP_SB13_3.0	02-DEC-2013	09-DEC-2013	31-MAY-2014	✓	09-DEC-2013	31-MAY-2014	✓
Soil Glass Jar - Unpreserved (EG005T)								
LS_MW01_0.5	LS_MW01_3.0	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)								
LP_MW06_1.0, LP_SB14_0.5, LP_SB13_0.5, LS_MW01_0.5	LP_MW06_3.0, LP_SB14_2.8, LP_SB13_3.0, LS_MW01_3.0	02-DEC-2013	09-DEC-2013	30-DEC-2013	✓	10-DEC-2013	30-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Soil Glass Jar - Unpreserved (EP071)								
LP_MW06_1.0, LP_SB14_0.5, LP_SB13_0.5, LS_MW01_0.5	LP_MW06_3.0, LP_SB14_2.8, LP_SB13_3.0, LS_MW01_3.0	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))								
LP_MW06_1.0, LP_SB14_0.5, LP_SB13_0.5, LS_MW01_0.5	LP_MW06_3.0, LP_SB14_2.8, LP_SB13_3.0, LS_MW01_3.0	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
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
LP_MW06_1.0, LP_SB14_0.5, LP_SB13_0.5, LS_MW01_0.5, LP_MW06_3.0, LP_SB14_2.8, LP_SB13_3.0, LS_MW01_3.0	02-DEC-2013	09-DEC-2013	16-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
LP_MW06_1.0, LP_SB14_0.5, LP_SB13_0.5, LS_MW01_0.5, LP_MW06_3.0, LP_SB14_2.8, LP_SB13_3.0, LS_MW01_3.0	02-DEC-2013	07-DEC-2013	16-DEC-2013	✓	09-DEC-2013	16-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Soil Glass Jar - Unpreserved (EP080)							
LP_MW06_1.0, LP_SB14_0.5, LP_SB13_0.5, LS_MW01_0.5, LP_MW06_3.0, LP_SB14_2.8, LP_SB13_3.0, LS_MW01_3.0	02-DEC-2013	07-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)							
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	4	36	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	32	12.5	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	1	10	10.0	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
Total Mercury by FIMS	EG035T	2	36	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	32	6.3	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	10	10.0	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
Total Mercury by FIMS	EG035T	2	36	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	32	6.3	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	10	10.0	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	2	36	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	32	6.3	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	10	10.0	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
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
Duplicate (DUP) RPDs							
EG005T: Total Metals by ICP-AES	ES1326688-009	Anonymous	Zinc	7440-66-6	26.7 %	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							
EP080S: TPH(V)/BTEX Surrogates	ES1326686-012	LS_MW01_3.0	Toluene-D8	2037-26-5	73.5 %	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.



CHAIN OF CUSTODY

ALS Laboratory
12/12

CLIENT: ERM
OFFICE: Sydney

PROJECT: Project Symphony

ORDER NUMBER: 0224168

PROJECT MANAGER: Jodie Perry

SAMPLER: Rita DeMint

COC enhanced to ALS? (YES / NO)

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

Comments/SPECIAL HANDLING/STORAGE OR DISPOSAL:

THIRAROUND REQUIREMENTS:
 Standard TWT (List due date)
 Mean Standard or urgent TWT (List due date)

ALS QUOTE NO.: SY79413

SITE: BAYSWATER/ROBE

CONTACT PH: 6159976468

SAMPLER MOBILE: 0414821694

EDD FORMAT (or default):

REMOVED BY: N2200

DATE/TIME: 02.12.13 17.00

COC SEQUENCE NUMBER (order)

REMOVED BY: Frank AS

DATE/TIME: 4-12-13 1900

REMOVED BY:

DATE/TIME:

REMOVED BY:

DATE/TIME:

FOR LABORATORY USE ONLY (Circle)
Customer Seal intact? Yes No N/A
From list / reason for holds present upon receipt? Yes No N/A
Reaction Sample Temperature on Receipt: C

ALS USE	SAMPLE DETAIL S MATRIX: SOLID (S) WATER (W)	CONTAINER INFORMATION	ANALYSIS REQUIRED including SITES (Nil. Some Codes must be listed to allow auto print) Where Matrix not required, specify Total (under total) or Dispersed (if relevant)	Additional Information															
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes (below)	factor to	TOYAL 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)	Comments on likely contaminant, inlets, inlets, or sampling requiring specific COC analysis etc.	
	18A-MW03-05	02.12.13	SOIL			1 plus	X	X	X	X	X								
	2	02.12.13	SOIL			1 plus	X	X	X	X	X								

Environmental Division
Sydney
Work Order
ES1326687
Telephone : +61-2-8784 8555



Matrix Codes: P = Untreated Plastic; N = Nitric Acid Preserved Plastic; DIC = Nitric Acid Preserved Plastic; S = Sodium Hydroxide Preserved Plastic; ZG = Amber Glass Untreated; AU = Airtight Untreated Plastic; V = VOA Vol HCl Preserved; VA = VOA Vol Sulfuric Acid Preserved; VS = VOA Vol Sulfuric Acid Preserved; NV = Airtight Untreated Vial; SG = Sulfuric Acid Preserved Amber Glass; H = HCl Preserved Plastic; HC = HCl Preserved Specimen Bottle; DP = Sulfuric Acid Preserved Plastic; F = Formic Acid Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Strich Matter; ASH = Plastic Bin for Ash; DTPH = Soil; U = Untreated Bin

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: ES1326687		
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	: LIDDELL		
Sampler	: RO		

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 SYD - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 2
Security Seal	: Intact.	No. of samples analysed	: 2

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 - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - S-27 TRH/BTEX/NP/AH/Phenols/8Metals
ES1326687-001	02-DEC-2013 15:00	LQ_MW03_0.5	✓	✓
ES1326687-002	02-DEC-2013 15:00	LQ_SB11_1.0	✓	✓

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

CERTIFICATE OF ANALYSIS

Work Order : ES1326687 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 : RO Site : LIDDELL 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 : 2 No. of samples analysed : 2
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

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

- **EG005T: Poor precision was obtained for Zinc on sample ES1326688 #009. Results have been confirmed by re-extraction and re-analysis.**



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LQ_MW03_0.5	LQ_SB11_1.0	---	---	---
				02-DEC-2013 15:00	02-DEC-2013 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1326687-001	ES1326687-002	---	---	---
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	---	1.0	%	7.7	16.7	---	---	---
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	8	<5	---	---	---
Cadmium	7440-43-9	1	mg/kg	<1	<1	---	---	---
Chromium	7440-47-3	2	mg/kg	11	81	---	---	---
Copper	7440-50-8	5	mg/kg	7	83	---	---	---
Lead	7439-92-1	5	mg/kg	12	<5	---	---	---
Nickel	7440-02-0	2	mg/kg	12	288	---	---	---
Zinc	7440-66-6	5	mg/kg	44	99	---	---	---
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	---	---	---
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	---	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	---	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LQ_MW03_0.5	LQ_SB11_1.0	---	---	---
				02-DEC-2013 15:00	02-DEC-2013 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1326687-001	ES1326687-002	---	---	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	---	---	---
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	---	---	---
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	---	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				LQ_MW03_0.5	LQ_SB11_1.0	----	----	----
				02-DEC-2013 15:00	02-DEC-2013 15:00	----	----	----
Compound	CAS Number	LOR	Unit	ES1326687-001	ES1326687-002	----	----	----
EP080: BTEXN - Continued								
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	70.2	77.2	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	84.9	88.8	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	99.7	103	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	97.9	93.7	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	102	105	----	----	----
Anthracene-d10	1719-06-8	0.1	%	109	111	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	102	104	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	87.5	84.5	----	----	----
Toluene-D8	2037-26-5	0.1	%	88.0	80.6	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	89.4	82.2	----	----	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
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	: ES1326687	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	: LIDDELL	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 11-DEC-2013
Sampler	: RO	No. of samples received	: 2
Order number	: 0224198	No. of samples analysed	: 2
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: **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: 3201225)									
ES1326685-007	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	17.7	17.5	1.4	0% - 50%
ES1326687-001	LQ_MW03_0.5	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	7.7	7.7	0.0	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 3201217)									
ES1326161-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	18	18	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: Zinc	7440-66-6	5	mg/kg	21	20	0.0	No Limit
ES1326688-009	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	4	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	5	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	12	12	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	8	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	138	181	# 26.7	0% - 20%
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	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3201276)									
ES1326687-001	LQ_MW03_0.5	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3201333)									
ES1326673-001	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



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: 3201333)									
ES1326673-001	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		
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3199531)									
ES1326686-005	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3201332)									
ES1326673-001	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 Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3199531)									
ES1326686-005	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: 3201332)									
ES1326673-001	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: BTEXN (QC Lot: 3199531)									
ES1326686-005	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	108-38-3 106-42-3	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: 3201217)									
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	102	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	109	71	133	
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: 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	105	81	133	
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	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3201276)									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	96.0	57.4	117	
EP075(SIM)A: Phenolic Compounds (QCLot: 3201333)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	114	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	108	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	114	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	103	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	91.4	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	114	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	# 115	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	106	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	105	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	83.0	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	87.0	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	26.5	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3201333)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	106	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	114	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	115	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	109	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	110	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	112	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	101	73	121	



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: 3201333) - continued								
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	110	81	123
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	104	70	118
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	114	77	123
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	101	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	113	71.7	113
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	91.8	72.4	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199531)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	90.1	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3201332)								
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	113	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	94.1	64	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199531)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	91.0	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3201332)								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	106	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	107	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
		50	mg/kg	----	150 mg/kg	71.5	63	131
EP080: BTEXN (QCLot: 3199531)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	84.8	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	88.1	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	84.7	58	118
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	83.3	60	120
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	87.2	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	89.0	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	Spike Recovery(%)	Recovery Limits (%)	
				Concentration	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



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
EG005T: Total Metals by ICP-AES (QCLot: 3201217) - continued							
ES1326161-001	Anonymous	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: 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
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3201276)							
ES1326687-001	LQ_MW03_0.5	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	102	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3201333)							
ES1326673-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	115	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	115	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	62.7	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	108	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	79.1	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3201333)							
ES1326673-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	114	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	119	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3199531)							
ES1326686-005	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	121	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3201332)							
ES1326673-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	83.8	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	81.2	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	69.9	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199531)							
ES1326686-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	117	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3201332)							
ES1326673-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	105	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	74.1	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	53.8	52	132
EP080: BTEXN (QCLot: 3199531)							
ES1326686-005	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	96.3	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	98.3	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	96.5	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
EP080: BTEXN (QCLot: 3199531) - continued							
ES1326686-005	Anonymous	EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	93.9	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	95.8	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	96.6	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: 3199531)										
ES1326686-005	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	121	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3199531)										
ES1326686-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	117	----	70	130	----	----
EP080: BTEXN (QCLot: 3199531)										
ES1326686-005	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	96.3	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	98.3	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	96.5	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	93.9	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	95.8	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	96.6	----	70	130	----	----
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: 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	----	----
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3201276)										
ES1326687-001	LQ_MW03_0.5	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	102	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3201332)										
ES1326673-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	83.8	----	73	137	----	----



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: 3201332) - continued										
ES1326673-001	Anonymous	EP071: C15 - C28 Fraction	----	3140 mg/kg	81.2	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	69.9	----	52	132	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3201332)										
ES1326673-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	105	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	74.1	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	53.8	----	52	132	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3201333)										
ES1326673-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	115	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	115	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	62.7	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	108	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	79.1	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3201333)										
ES1326673-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	114	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	119	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326687	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	: LIDDELL	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 11-DEC-2013
Sampler	: RO	No. of samples received	: 2
Order number	: 0224198	No. of samples analysed	: 2
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) LQ_MW03_0.5, LQ_SB11_1.0	02-DEC-2013	----	----	----	09-DEC-2013	16-DEC-2013	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) LQ_MW03_0.5, LQ_SB11_1.0	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) LQ_MW03_0.5, LQ_SB11_1.0	02-DEC-2013	09-DEC-2013	30-DEC-2013	✓	10-DEC-2013	30-DEC-2013	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) LQ_MW03_0.5, LQ_SB11_1.0	02-DEC-2013	09-DEC-2013	16-DEC-2013	✓	10-DEC-2013	18-JAN-2014	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) LQ_MW03_0.5, LQ_SB11_1.0	02-DEC-2013	09-DEC-2013	16-DEC-2013	✓	10-DEC-2013	18-JAN-2014	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) LQ_MW03_0.5, LQ_SB11_1.0	02-DEC-2013	09-DEC-2013	16-DEC-2013	✓	10-DEC-2013	18-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) LQ_MW03_0.5, LQ_SB11_1.0	02-DEC-2013	09-DEC-2013	16-DEC-2013	✓	10-DEC-2013	18-JAN-2014	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) LQ_MW03_0.5, LQ_SB11_1.0	02-DEC-2013	07-DEC-2013	16-DEC-2013	✓	09-DEC-2013	16-DEC-2013	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) LQ_MW03_0.5, LQ_SB11_1.0	02-DEC-2013	07-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)							
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	8	12.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	10	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	1	8	12.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	10	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	10	10.0	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	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	10	10.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	10	10.0	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	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	10	10.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	10	10.0	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	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	10	10.0	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)
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)
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
Duplicate (DUP) RPDs							
EG005T: Total Metals by ICP-AES	ES1326688-009	Anonymous	Zinc	7440-66-6	26.7 %	0-20%	RPD exceeds LOR based limits
Laboratory Control Spike (LCS) Recoveries							
EP075(SIM)A: Phenolic Compounds	3821299-007	----	2,4-Dichlorophenol	120-83-2	115 %	68-112%	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

- 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.

M212

CHAIN OF CUSTODY
 ALS Laboratory
 please tick →

CLIENT: **ERM**
 OFFICE: **Perth**
 PROJECT: **Project Symphony**
 ORDER NUMBER: **0224198**
 PROJECT MANAGER: **Joe Ferris**
 SAMPLER: **Tara Arman**
 CONTACT PH: _____
 SAMPLER MOBILE: _____
 EDD FORMAT (or default): _____

TURNAROUND REQUIREMENTS:
 Standard TAT (Last due date)
 Non Standard or urgent TAT (Last due date): _____

ALS QUOTE NO.: **SV79413**
 SITE: **BAYSWATER (LIDDED)**

RECEIVED BY: **Frank ASS**
 DATE/TIME: **4-12-13 1000**

RELINQUISHED BY: _____
 DATE/TIME: _____

FOR LABORATORY USE ONLY (Circle)
 Custody Seal intact? Yes No N/A
 Free ice / frozen ice bricks present upon receipt? Yes No N/A
 Random Sample Temperature on Receipt: _____ °C
 Other receipt: _____

RECEIVED BY: **Frank ASS**
 DATE/TIME: **4-12-13 1000**

RELINQUISHED BY: _____
 DATE/TIME: _____

FOR LABORATORY USE ONLY (Circle)
 Custody Seal intact? Yes No N/A
 Free ice / frozen ice bricks present upon receipt? Yes No N/A
 Random Sample Temperature on Receipt: _____ °C
 Other receipt: _____

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	CONTAINER INFORMATION (refer to TOTAL CONTAINERS)	ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Matrix are required, Specify Tank (unfiltered bottle requires) or Dissolved (acid filtered bottle required)	Additional Information
1	LE-MW05-3-0	30/11/13	SOIL	1G	1	17 Metals (As, Ba, Be, Cd, Cr, Cu, Ni, Pb, Zn, Hg) S-24 TRH(Cb, C40yBTEXN, PAH, Phenols) VOC Target Scan PCB pH (1:5) Exchangeable cations (ED007) PFOS/PFOA Asbestos (absence/presence) Particle Sizing to 75µm (Stevn) Organic Matter plus Carbon (EPO04)	Comments on likely contaminant levels, dilutions, or samples requiring specific O.C. analysis etc.
2	LO-SB01-1-3	↓	↓	↓	1	17 Metals (As, Ba, Be, Cd, Cr, Cu, Ni, Pb, Zn, Hg) S-24 TRH(Cb, C40yBTEXN, PAH, Phenols) VOC Target Scan PCB pH (1:5) Exchangeable cations (ED007) PFOS/PFOA Asbestos (absence/presence) Particle Sizing to 75µm (Stevn) Organic Matter plus Carbon (EPO04)	
3	LO-SB02-1-3	↓	↓	↓	1	17 Metals (As, Ba, Be, Cd, Cr, Cu, Ni, Pb, Zn, Hg) S-24 TRH(Cb, C40yBTEXN, PAH, Phenols) VOC Target Scan PCB pH (1:5) Exchangeable cations (ED007) PFOS/PFOA Asbestos (absence/presence) Particle Sizing to 75µm (Stevn) Organic Matter plus Carbon (EPO04)	
4	LE-SB03-2-3	↓	↓	↓	1	17 Metals (As, Ba, Be, Cd, Cr, Cu, Ni, Pb, Zn, Hg) S-24 TRH(Cb, C40yBTEXN, PAH, Phenols) VOC Target Scan PCB pH (1:5) Exchangeable cations (ED007) PFOS/PFOA Asbestos (absence/presence) Particle Sizing to 75µm (Stevn) Organic Matter plus Carbon (EPO04)	

Environmental Division
 Sydney
 Work Order
ES1326689



Telephone : + 61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORG = Nitric Preserved Organic; SH = Sodium Hydroxide Preserved Plastic; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved Plastic; AU = 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 Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Specimen Bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sorbents; B = Unpreserved Bag

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1326689

<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 : 0224198</p> <p>C-O-C number : ----</p> <p>Site : LIDDELL</p> <p>Sampler : WG</p>	<p>Page : 1 of 2</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 : 04-DEC-2013</p> <p>Client Requested Due Date : 10-DEC-2013</p>	<p>Issue Date : 06-DEC-2013 16:38</p> <p>Scheduled Reporting Date : 10-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 : 3.5°C - Ice present</p> <p>No. of samples received : 4</p> <p>No. of samples analysed : 4</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.**
- **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 - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP231 Perfluorocyclo Acids and Sulfonates by LC/MS/MS	SOIL - S-27 TRH/TEXNIPAH/Phenols&Metals
ES1326689-001	30-NOV-2013 15:00	LE_MW05_3.0				✓
ES1326689-002	30-NOV-2013 15:00	LD_SB01_1.3	✓	✓	✓	✓
ES1326689-003	30-NOV-2013 15:00	LQ_SB02_1.3	✓			✓
ES1326689-004	30-NOV-2013 15:00	LE_SB03_2.3				✓

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 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	: ES1326689	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
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Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0224198	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 11-DEC-2013
Sampler	: WG	No. of samples received	: 4
Site	: LIDDELL	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 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.**
- **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
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				LE_MW05_3.0	LD_SB01_1.3	LQ_SB02_1.3	LE_SB03_2.3	----
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326689-001	ES1326689-002	ES1326689-003	ES1326689-004	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	14.0	18.8	17.6	23.7	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	9	8	<5	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	5	6	4	4	----
Copper	7440-50-8	5	mg/kg	<5	5	7	<5	----
Lead	7439-92-1	5	mg/kg	7	9	9	14	----
Nickel	7440-02-0	2	mg/kg	<2	<2	13	<2	----
Zinc	7440-66-6	5	mg/kg	6	9	36	<5	----
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	----	----
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

				LE_MW05_3.0	LD_SB01_1.3	LQ_SB02_1.3	LE_SB03_2.3	----
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	----
				ES1326689-001	ES1326689-002	ES1326689-003	ES1326689-004	----
Compound	CAS Number	LOR	Unit					
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

				LE_MW05_3.0	LD_SB01_1.3	LQ_SB02_1.3	LE_SB03_2.3	----
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326689-001	ES1326689-002	ES1326689-003	ES1326689-004	----
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	----
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	2.3	<0.5	<0.5	1.3	----
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	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LE_MW05_3.0	LD_SB01_1.3	LQ_SB02_1.3	LE_SB03_2.3	----
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326689-001	ES1326689-002	ES1326689-003	ES1326689-004	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Phenanthrene	85-01-8	0.5	mg/kg	2.4	<0.5	<0.5	2.4	----
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	4.7	<0.5	<0.5	3.7	----
^ 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	37	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	880	<50	<50	810	----
C15 - C28 Fraction	----	100	mg/kg	3470	<100	<100	1990	----
C29 - C36 Fraction	----	100	mg/kg	880	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	5230	<50	<50	2800	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	61	<10	<10	19	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	52	<10	<10	19	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	1650	<50	<50	1560	----
>C16 - C34 Fraction	----	100	mg/kg	3460	<100	<100	1250	----
>C34 - C40 Fraction	----	100	mg/kg	240	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	5350	<50	<50	2810	----
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	2.1	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	0.9	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	3.8	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	1.7	<0.5	<0.5	<0.5	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				LE_MW05_3.0	LD_SB01_1.3	LQ_SB02_1.3	LE_SB03_2.3	----
				30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	30-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326689-001	ES1326689-002	ES1326689-003	ES1326689-004	----
EP080: BTEXN - Continued								
^ Sum of BTEX	----	0.2	mg/kg	8.5	<0.2	<0.2	<0.2	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	5.5	<0.5	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg	2	<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	%	----	64.3	63.0	----	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	85.9	----	----	----
Toluene-D8	2037-26-5	0.1	%	----	116	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	106	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	87.6	86.1	77.8	101	----
2-Chlorophenol-D4	93951-73-6	0.1	%	102	96.3	92.1	107	----
2,4,6-Tribromophenol	118-79-6	0.1	%	75.0	82.2	83.2	90.6	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	101	108	102	121	----
Anthracene-d10	1719-06-8	0.1	%	89.6	92.4	89.7	96.5	----
4-Terphenyl-d14	1718-51-0	0.1	%	96.1	105	106	119	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	88.6	80.4	79.9	80.5	----
Toluene-D8	2037-26-5	0.1	%	114	108	112	106	----
4-Bromofluorobenzene	460-00-4	0.1	%	124	125	123	110	----



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	: ES1326689	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	: LIDDELL	Date Samples Received	: 04-DEC-2013
C-O-C number	: ---	Issue Date	: 11-DEC-2013
Sampler	: WG	No. of samples received	: 4
Order number	: 0224198	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

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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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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 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 (%)
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%
EG005T: Total Metals by ICP-AES (QC Lot: 3201217)									
ES1326161-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	18	18	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: Zinc	7440-66-6	5	mg/kg	21	20	0.0	No Limit
ES1326688-009	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	4	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	5	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	12	12	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	8	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	138	181	# 26.7	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 3201220)									
ES1326689-003	LQ_SB02_1.3	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: 3201218)									
ES1326161-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326688-009	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: 3201221)									
ES1326689-003	LQ_SB02_1.3	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3197863)									
ES1326383-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326596-003	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3200849)									
ES1326689-002	LD_SB01_1.3	EP074: Styrene	100-42-5	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 (%)
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3200849) - continued									
ES1326689-002	LD_SB01_1.3	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: 3200849)									
ES1326689-002	LD_SB01_1.3	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: 3200849)									
ES1326689-002	LD_SB01_1.3	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3200849)									
ES1326689-002	LD_SB01_1.3	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: 3200849)									
ES1326689-002	LD_SB01_1.3	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



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: 3200849) - continued									
ES1326689-002	LD_SB01_1.3	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: 3200849)									
ES1326689-002	LD_SB01_1.3	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: 3200849)									
ES1326689-002	LD_SB01_1.3	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: 3200849)									
ES1326689-002	LD_SB01_1.3	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	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



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): 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: 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



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: 3197951) - continued										
ES1326685-006	Anonymous	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: 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	LD_SB01_1.3	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	LD_SB01_1.3	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
EP080: BTEXN (QC Lot: 3200848)										
ES1326689-002	LD_SB01_1.3	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		
EP231: Perfluorinated Compounds (QC Lot: 3197438)										
EP1309231-059	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit	

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 Work Order : ES1326689
 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 (%)
EP231: Perfluorinated Compounds (QC Lot: 3197438) - continued									
EP1309231-059	Anonymous	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	
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: 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: 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: 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	105	81	133	
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: 3201218)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	77.5	66	112	
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	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3197863)									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	89.6	57.4	117	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3200849)									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	88.6	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	93.0	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	73.3	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	78.2	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	78.0	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	80.3	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	79.8	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	80.2	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	68.2	61	131	
EP074B: Oxygenated Compounds (QCLot: 3200849)									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	39.5	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: 3200849) - continued									
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	112	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	81.0	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	79.8	54	136	
		5	mg/kg	<5	----	----	----	----	
EP074C: Sulfonated Compounds (QCLot: 3200849)									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	77.0	54	126	
EP074D: Fumigants (QCLot: 3200849)									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	68.6	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	75.3	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	85.6	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	70.0	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	92.9	66	126	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3200849)									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	34.2	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	44.6	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	58.1	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	50.2	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	53.1	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	53.8	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	57.8	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	61.7	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	79.3	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	75.6	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	77.1	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	89.2	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	77.9	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	100	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	80.6	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	84.3	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	88.7	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	109	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: 3200849) - continued									
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	100	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	96.8	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	109	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	86.8	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	80.9	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	89.2	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	88.0	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	114	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	90.1	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	77.0	48	136	
EP074F: Halogenated Aromatic Compounds (QCLot: 3200849)									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	95.1	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	90.7	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	71.9	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	76.8	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	86.2	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	84.7	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	86.5	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	92.4	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	83.8	60	132	
EP074G: Trihalomethanes (QCLot: 3200849)									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	83.3	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	96.9	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	92.4	60	126	
EP074H: Naphthalene (QCLot: 3200849)									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	86.7	63	133	
		5	mg/kg	<5	----	----	----	----	
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	



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: 3197951) - continued									
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	
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	



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: 3200848) - continued								
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	99.0	60	120
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
EP231: Perfluorinated Compounds (QCLot: 3197438)								
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	112	54	146
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	121	54	134
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	124	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: 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: Zinc	7440-66-6	125 mg/kg	104	70	130
EG005T: Total Metals by ICP-AES (QCLot: 3201220)							
ES1326689-003	LQ_SB02_1.3	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
		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: 3201218)							
ES1326161-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	83.5	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3201221)							
ES1326689-003	LQ_SB02_1.3	EG035T: Mercury	7439-97-6	5 mg/kg	107	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3197863)							
ES1326383-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	82.6	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: 3200849)								
ES1326689-002	LD_SB01_1.3	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	75.9	70	130	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	81.5	70	130	
EP074F: Halogenated Aromatic Compounds (QCLot: 3200849)								
ES1326689-002	LD_SB01_1.3	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	89.0	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	LD_SB01_1.3	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	LD_SB01_1.3	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	84.0	70	130	
EP080: BTEXN (QCLot: 3200848)								
ES1326689-002	LD_SB01_1.3	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			
EP231: Perfluorinated Compounds (QCLot: 3197438)								
EP1309231-059	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	102	54	146	
		EP231: PFOA	335-67-1	0.0025 mg/kg	124	54	134	



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
EP231: Perfluorinated Compounds (QCLot: 3197438) - continued							
EP1309231-059		Anonymous	EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	121	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						
Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS MSD		Recovery Limits (%) Low High		RPDs (%) Value Control Limit	
EP231: Perfluorinated Compounds (QCLot: 3197438)											
EP1309231-059		Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	102	----	54	146	----	----
			EP231: PFOA	335-67-1	0.0025 mg/kg	124	----	54	134	----	----
			EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	121	----	56	138	----	----
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3197863)											
ES1326383-001		Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	82.6	----	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 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		LD_SB01_1.3	EP080: C6 - C9 Fraction	----	32.5 mg/kg	85.6	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3200848)											
ES1326689-002		LD_SB01_1.3	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	84.0	----	70	130	----	----
EP080: BTEXN (QCLot: 3200848)											



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: BTEXN (QCLot: 3200848) - continued										
ES1326689-002	LD_SB01_1.3	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	----	----
		EP080: ortho-Xylene	106-42-3	2.5 mg/kg	86.2	----	70	130	----	----
		EP080: Naphthalene	95-47-6	2.5 mg/kg	71.3	----	70	130	----	----
EP074E: Halogenated Aliphatic Compounds (QCLot: 3200849)										
ES1326689-002	LD_SB01_1.3	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	75.9	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	81.5	----	70	130	----	----
EP074F: Halogenated Aromatic Compounds (QCLot: 3200849)										
ES1326689-002	LD_SB01_1.3	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	89.0	----	70	130	----	----
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: 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	----	----
EG005T: Total Metals by ICP-AES (QCLot: 3201220)										
ES1326689-003	LQ_SB02_1.3	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	----	----
		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	LQ_SB02_1.3	EG035T: Mercury	7439-97-6	5 mg/kg	107	----	70	130	----	----



INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326689	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	: LIDDELL	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 11-DEC-2013
Sampler	: WG	No. of samples received	: 4
Order number	: 0224198	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
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103) LE_MW05_3.0, LD_SB01_1.3, LQ_SB02_1.3, LE_SB03_2.3	30-NOV-2013	----	----	----	09-DEC-2013	14-DEC-2013	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) LE_MW05_3.0, LD_SB01_1.3, LQ_SB02_1.3, LE_SB03_2.3	30-NOV-2013	09-DEC-2013	29-MAY-2014	✓	10-DEC-2013	29-MAY-2014	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) LE_MW05_3.0, LD_SB01_1.3, LQ_SB02_1.3, LE_SB03_2.3	30-NOV-2013	09-DEC-2013	28-DEC-2013	✓	10-DEC-2013	28-DEC-2013	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) LD_SB01_1.3, LQ_SB02_1.3	30-NOV-2013	06-DEC-2013	14-DEC-2013	✓	09-DEC-2013	15-JAN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Soil Glass Jar - Unpreserved (EP071) LE_MW05_3.0, LD_SB01_1.3, LQ_SB02_1.3, LE_SB03_2.3	30-NOV-2013	09-DEC-2013	14-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074) LD_SB01_1.3	30-NOV-2013	07-DEC-2013	07-DEC-2013	✓	07-DEC-2013	07-DEC-2013	✓
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074) LD_SB01_1.3	30-NOV-2013	07-DEC-2013	07-DEC-2013	✓	07-DEC-2013	07-DEC-2013	✓
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074) LD_SB01_1.3	30-NOV-2013	07-DEC-2013	07-DEC-2013	✓	07-DEC-2013	07-DEC-2013	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074) LD_SB01_1.3	30-NOV-2013	07-DEC-2013	07-DEC-2013	✓	07-DEC-2013	07-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
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074) LD_SB01_1.3	30-NOV-2013	07-DEC-2013	07-DEC-2013	✓	07-DEC-2013	07-DEC-2013	✓
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074) LD_SB01_1.3	30-NOV-2013	07-DEC-2013	07-DEC-2013	✓	07-DEC-2013	07-DEC-2013	✓
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved (EP074) LD_SB01_1.3	30-NOV-2013	07-DEC-2013	07-DEC-2013	✓	07-DEC-2013	07-DEC-2013	✓
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074) LD_SB01_1.3	30-NOV-2013	07-DEC-2013	07-DEC-2013	✓	07-DEC-2013	07-DEC-2013	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) LE_MW05_3.0, LD_SB01_1.3, LQ_SB02_1.3, LE_SB03_2.3	30-NOV-2013	09-DEC-2013	14-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) LE_MW05_3.0, LD_SB01_1.3, LQ_SB02_1.3, LE_SB03_2.3	30-NOV-2013	09-DEC-2013	14-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) LE_MW05_3.0, LD_SB01_1.3, LQ_SB02_1.3, LE_SB03_2.3	30-NOV-2013	07-DEC-2013	14-DEC-2013	✓	07-DEC-2013	14-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Soil Glass Jar - Unpreserved (EP080) LE_MW05_3.0, LD_SB01_1.3, LQ_SB02_1.3, LE_SB03_2.3	30-NOV-2013	07-DEC-2013	14-DEC-2013	✓	07-DEC-2013	14-DEC-2013	✓
EP231: Perfluorinated Compounds							
Soil Glass Jar - Unpreserved (EP231) LD_SB01_1.3	30-NOV-2013	06-DEC-2013	29-MAY-2014	✓	07-DEC-2013	15-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)							
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
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	5	20.0	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	3	22	13.6	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	3	21	14.3	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
Volatile Organic Compounds	EP074	1	1	100.0	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
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	5	20.0	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	2	22	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	21	9.5	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
Volatile Organic Compounds	EP074	1	1	100.0	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
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	5	20.0	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	2	22	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	21	9.5	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
Volatile Organic Compounds	EP074	1	1	100.0	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
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	5	20.0	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	2	22	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	21	9.5	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
Volatile Organic Compounds	EP074	1	1	100.0	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)
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/MS/MS, ESI Negative Mode using MRM.

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.

Page : 6 of 7
Work Order : ES1326689
Client : ENVIRO RESOURCES MANAGEMENT
Project : Project Symphony



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
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	ES1326688-009	Anonymous	Zinc	7440-66-6	26.7 %	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.

- 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 see...

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

REQUISITION BY / DATE
Custody Seal Intact? Yes No
From laboratory unless present upon receipt? Yes No
Blanket Sample Temperature on Receipt: Yes No

Attach By PO / In-house signature ONLY (Circle)

CLIENT: ERM
PROJECT: Sidney
PROJECT / Project Symmetry
ORDER NUMBER: 07224189
PROJECT MANAGER: Joe Fetting
SAMPLER: Sean Fonzar
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:

TURNAROUND REQUIREMENTS:
Standard TAT may be longer for sample collection.
ALS QUOTE NO.: SYVTMT3
SITE: BAYSWATER (LIDDELL)
CONTACT PH: 0402614304
SAMPLER MOBILE: 0402614304
EOD FORMAT (or default):
RELINQUISHED BY: John Dunning @erm.com
DATE/TIME: 16/12/13 1430

RECEIVED BY: ec DATE/TIME: 16/12/13 1700
RECEIVED BY: KAR DATE/TIME: 16/12/13 1900

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)	CONTAINER INFORMATION	ANALYSIS REQUIRED (including SURTES, NB: Scan Codes must be filled to allow split price) Where blanks are required, specify total (undiluted) bottle number) or Diluted (if dilution factor required)															
	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) (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)

	1	LS-SB02-0.5	3/12/13	1225	SOIL	Seal and Bag	2	X	X	X	X	X	X	X	X	X	X	X	
	2	LS-MW02-0.5	1200				2	X	X	X	X	X	X	X	X	X	X	X	
	3	LS-SB06-0.5	1310				2	X	X	X	X	X	X	X	X	X	X	X	
	4	LS-MW04-0.5	1350				2	X	X	X	X	X	X	X	X	X	X	X	
	5	LS-SB02-1.0	1435				2	X	X	X	X	X	X	X	X	X	X	X	
	6	LS-SB03-0.5	1510				2	X	X	X	X	X	X	X	X	X	X	X	
	7	LS-SB04-0.5	1545				2	X	X	X	X	X	X	X	X	X	X	X	
	8	LS-MW03-0.2	1605				2	X	X	X	X	X	X	X	X	X	X	X	
	9	TRIP BEAK			Soil	Soil	1												
	10	TRIP SPIKE			Soil	Soil	1												
	11	R01031213 SP			Water Ag, VA etc	Water Ag, VA etc	4												
	12	TS C 7	28/11/13																
	13	LD-MW05-0.1	4/02/13			13AK													

Extra 14 LI-SB05-0.5 3/12/13 13AK + 1 Bag
Extra 15 LO-SB03-0.1 1 Bag

Extra

BEST TRAC ONLY
OTHER TRAC ANALYSIS
NO PRELIM ANALYSIS

Environmental Division
Sydney
Work Order
ES1326974
Telephone: +61-2-8784 8555



SEND / Forward Lab / Split WO
Lab / Analysis: Boys for Asbestos
Organised By / Date: 1-7

Cc: Joseph Ferring; ERM Australia Project Symphony MacGen; John Ewing
Subject: ES1326974

Doe 19/12

Hi Barbara,

I'd like to schedule some additional analysis for the above batch, please.

Please analyse, and provide results asap, the following:

Samples 013 and 015:

- S27
- Asbestos
- VOC
- PCB
- PFOS/PFOA

Sample 014:

- S27
- Asbestos

Further, sample 015, which was an additional sample not listed by our guys on the COC, has a client sample ID of LO_SB03_0.#. Can you please investigate this further for me? Was it that a second number was illegible? Or was the sample labelled as "LO_SB03_0."? If it was illegible, is there a way you can send me a photo of the label so I can send to the field guys and try to work out what it should say?

Thanks Barbara,

Clea Henderson
Chemical Engineer

Environmental Resources Management
Level 3, Tower 3, 13-38 Siddeley Street,
World Trade Centre, Docklands Victoria 3005

Tel: +61 3 8606 4188 (Direct)
Tel: +61 3 9696 8011 (switchboard)
Fax: +61 3 9696 8022

www.erm.com
clea.henderson@erm.com



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Please visit ERM's web site: <http://www.erm.com>

ALS Group: Click [here](#) to report this email as spam.

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: ES1326974		
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	: 0224189	Quote number	: ES2013ENVRES0369 (SY/794/13)
C-O-C number	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: LIDDELL		
Sampler	: S.P		

Dates

Date Samples Received	: 10-DEC-2013	Issue Date	: 18-DEC-2013 14:38
Client Requested Due Date	: 19-DEC-2013	Scheduled Reporting Date	: 19-DEC-2013

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 5°C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 14
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
- 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.
- Asbestos analysis will be subcontracted to ASET.
- **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 LJ_MW03_0.2 has not been received.**
- **Sample LO_MW05_0.1, LI_SB05_0.5 and LO_SB03_0 received extra and conducted analysis on 16/12/13 as per Joseph Ferring**
- 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 Client sample ID	Sample Container Received	Preferred Sample Container for Analysis
EP066 : Polychlorinated Biphenyls (PCB)		
LO_SB03_0.5	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
EP071 : TPH - Semivolatile Fraction		
LO_SB03_0.5	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
EP074 : Volatile Organic Compounds		
LO_SB03_0.5	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
EP075(SIM) : PAH/Phenols (SIM)		
LO_SB03_0.5	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
EP080 : TPH Volatiles/BTEX		
LO_SB03_0.5	- Snap Lock Bag	- Soil Glass Jar - Unpreserved

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 - EP231 Perfluorooctyl Acids and Sulfonates by LC/MS/MS	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1326974-001	03-DEC-2013 11:25	LJ_SB07_0.5	✓	✓	✓			✓
ES1326974-002	03-DEC-2013 12:00	LJ_MW02_0.5	✓	✓	✓			✓
ES1326974-003	03-DEC-2013 13:10	LJ_SB06_0.5	✓	✓	✓			✓
ES1326974-004	03-DEC-2013 13:50	LJ_MW04_0.5	✓	✓	✓			✓
ES1326974-005	03-DEC-2013 14:35	LJ_SB02_1.0	✓	✓	✓			✓
ES1326974-006	03-DEC-2013 15:10	LJ_SB03_0.5	✓	✓	✓			✓
ES1326974-007	03-DEC-2013 15:45	LJ_SB04_0.5	✓	✓	✓			✓
ES1326974-009	28-NOV-2013 15:00	TRIP BLANK					✓	
ES1326974-010	28-NOV-2013 15:00	TRIP SPIKE					✓	
ES1326974-012	28-NOV-2013 15:00	TSC 7					✓	
ES1326974-013	04-DEC-2013 15:00	LO_MW05_0.1	✓	✓	✓	✓		✓
ES1326974-014	03-DEC-2013 15:00	LI_SB05_0.5	✓					✓
ES1326974-015	03-DEC-2013 15:00	LO_SB03_0.5	✓	✓	✓	✓		✓



Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-26 TRH/BTEX/PAH/8 Metals
ES1326974-011	10-DEC-2013 15:00	R01_031213_SP	✓

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
- Attachment - Report (SUBCO) 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
- Attachment - Report (SUBCO) Email joseph.ferring@erm.com
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- 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
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- 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	: ES1326974	Page	: 1 of 21
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	: 0224189	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 19-DEC-2013
Sampler	: S.P	No. of samples received	: 14
Site	: LIDDELL	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

- **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.**
- **EP074: Positive results of LJ_SB06_0.5 and LJ_SB02_1.0 have been confirmed by 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.**
- **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
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
		Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LJ_SB07_0.5	LJ_MW02_0.5	LJ_SB06_0.5	LJ_MW04_0.5	LJ_SB02_1.0
				03-DEC-2013 11:25	03-DEC-2013 12:00	03-DEC-2013 13:10	03-DEC-2013 13:50	03-DEC-2013 14:35
Compound	CAS Number	LOR	Unit	ES1326974-001	ES1326974-002	ES1326974-003	ES1326974-004	ES1326974-005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	20.0	22.9	21.0	24.2	19.0
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	12	15	8	9	7
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	22	18	16	35	15
Copper	7440-50-8	5	mg/kg	29	27	21	17	17
Lead	7439-92-1	5	mg/kg	22	18	15	15	12
Nickel	7440-02-0	2	mg/kg	21	31	16	36	11
Zinc	7440-66-6	5	mg/kg	70	80	60	48	41
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	0.6
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	1.2
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

				LJ_SB07_0.5	LJ_MW02_0.5	LJ_SB06_0.5	LJ_MW04_0.5	LJ_SB02_1.0
				03-DEC-2013 11:25	03-DEC-2013 12:00	03-DEC-2013 13:10	03-DEC-2013 13:50	03-DEC-2013 14:35
Compound	CAS Number	LOR	Unit	ES1326974-001	ES1326974-002	ES1326974-003	ES1326974-004	ES1326974-005
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	0.8	<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

Client sampling date / time

				LJ_SB07_0.5	LJ_MW02_0.5	LJ_SB06_0.5	LJ_MW04_0.5	LJ_SB02_1.0
				03-DEC-2013 11:25	03-DEC-2013 12:00	03-DEC-2013 13:10	03-DEC-2013 13:50	03-DEC-2013 14:35
Compound	CAS Number	LOR	Unit	ES1326974-001	ES1326974-002	ES1326974-003	ES1326974-004	ES1326974-005
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	3.4
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

				LJ_SB07_0.5	LJ_MW02_0.5	LJ_SB06_0.5	LJ_MW04_0.5	LJ_SB02_1.0
				03-DEC-2013 11:25	03-DEC-2013 12:00	03-DEC-2013 13:10	03-DEC-2013 13:50	03-DEC-2013 14:35
Compound	CAS Number	LOR	Unit	ES1326974-001	ES1326974-002	ES1326974-003	ES1326974-004	ES1326974-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	6.4
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	9.8
^ 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	2660
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	6900
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	9560
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	18
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	18
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	5610
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	3990
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	9600
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	5610
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

				LJ_SB07_0.5	LJ_MW02_0.5	LJ_SB06_0.5	LJ_MW04_0.5	LJ_SB02_1.0
				03-DEC-2013 11:25	03-DEC-2013 12:00	03-DEC-2013 13:10	03-DEC-2013 13:50	03-DEC-2013 14:35
Compound	CAS Number	LOR	Unit	ES1326974-001	ES1326974-002	ES1326974-003	ES1326974-004	ES1326974-005
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	4
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	95.1	90.7	90.9	93.3	89.8
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	88.0	92.4	83.8	94.2	93.2
Toluene-D8	2037-26-5	0.1	%	96.7	94.3	85.8	98.2	96.9
4-Bromofluorobenzene	460-00-4	0.1	%	86.0	81.8	77.2	84.3	86.7
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	108	101	108	112	93.4
2-Chlorophenol-D4	93951-73-6	0.1	%	112	105	106	110	96.4
2,4,6-Tribromophenol	118-79-6	0.1	%	73.8	58.1	68.2	68.5	62.9
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	106	98.1	105	108	97.2
Anthracene-d10	1719-06-8	0.1	%	92.1	86.7	94.8	93.5	80.0
4-Terphenyl-d14	1718-51-0	0.1	%	81.5	73.3	80.2	82.1	71.3
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	85.4	89.7	81.4	91.2	90.3
Toluene-D8	2037-26-5	0.1	%	87.1	84.8	77.0	88.4	87.2
4-Bromofluorobenzene	460-00-4	0.1	%	84.2	80.2	76.3	83.3	84.8



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LJ_SB03_0.5	LJ_SB04_0.5	TRIP BLANK	TRIP SPIKE	TSC 7
				03-DEC-2013 15:10	03-DEC-2013 15:45	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326974-006	ES1326974-007	ES1326974-009	ES1326974-010	ES1326974-012
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	21.7	11.1	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	8	6	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	28	22	----	----	----
Copper	7440-50-8	5	mg/kg	18	30	----	----	----
Lead	7439-92-1	5	mg/kg	16	17	----	----	----
Nickel	7440-02-0	2	mg/kg	18	24	----	----	----
Zinc	7440-66-6	5	mg/kg	51	186	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<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	<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	----	----	----
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	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LJ_SB03_0.5	LJ_SB04_0.5	TRIP BLANK	TRIP SPIKE	TSC 7
				03-DEC-2013 15:10	03-DEC-2013 15:45	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326974-006	ES1326974-007	ES1326974-009	ES1326974-010	ES1326974-012
EP074D: Fumigants - Continued								
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	----	----	----
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	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LJ_SB03_0.5	LJ_SB04_0.5	TRIP BLANK	TRIP SPIKE	TSC 7
				03-DEC-2013 15:10	03-DEC-2013 15:45	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326974-006	ES1326974-007	ES1326974-009	ES1326974-010	ES1326974-012
EP074F: Halogenated Aromatic Compounds - Continued								
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								
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	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LJ_SB03_0.5	LJ_SB04_0.5	TRIP BLANK	TRIP SPIKE	TSC 7
				03-DEC-2013 15:10	03-DEC-2013 15:45	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326974-006	ES1326974-007	ES1326974-009	ES1326974-010	ES1326974-012
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	<10	38	78
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	44	93
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	26	55
>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	0.4	0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LJ_SB03_0.5	LJ_SB04_0.5	TRIP BLANK	TRIP SPIKE	TSC 7
				03-DEC-2013 15:10	03-DEC-2013 15:45	28-NOV-2013 15:00	28-NOV-2013 15:00	28-NOV-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326974-006	ES1326974-007	ES1326974-009	ES1326974-010	ES1326974-012
EP080: BTEXN - Continued								
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	9.1	17.3
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	1.0	2.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	5.4	12.4
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	2.2	5.0
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	18.1	37.7
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	7.6	17.4
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	89.4	81.1	----	----	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	89.7	87.2	----	----	----
Toluene-D8	2037-26-5	0.1	%	123	106	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	94.6	91.5	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	110	111	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	109	109	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	67.8	70.1	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	106	108	----	----	----
Anthracene-d10	1719-06-8	0.1	%	91.3	91.3	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	78.9	80.2	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	84.7	84.6	102	100	92.8
Toluene-D8	2037-26-5	0.1	%	106	95.8	86.3	87.8	99.3
4-Bromofluorobenzene	460-00-4	0.1	%	97.8	91.7	100	99.5	109



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LO_MW05_0.1	LI_SB05_0.5	LO_SB03_0.5	---	---
				04-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1326974-013	ES1326974-014	ES1326974-015	---	---
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	---	1.0	%	17.0	19.2	27.3	---	---
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	9	---	---
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	---	---
Chromium	7440-47-3	2	mg/kg	17	2	15	---	---
Copper	7440-50-8	5	mg/kg	14	6	11	---	---
Lead	7439-92-1	5	mg/kg	<5	<5	14	---	---
Nickel	7440-02-0	2	mg/kg	29	2	3	---	---
Zinc	7440-66-6	5	mg/kg	39	23	21	---	---
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<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								
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	---	---
Styrene	100-42-5	0.5	mg/kg	<0.5	---	<0.5	---	---
ortho-Xylene	95-47-6	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	---	---
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	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LO_MW05_0.1	LI_SB05_0.5	LO_SB03_0.5	---	---
				04-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1326974-013	ES1326974-014	ES1326974-015	---	---
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	---	---
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	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LO_MW05_0.1	LI_SB05_0.5	LO_SB03_0.5	----	----
				04-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1326974-013	ES1326974-014	ES1326974-015	----	----
EP074E: Halogenated Aliphatic Compounds - Continued								
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								
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								



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LO_MW05_0.1	LI_SB05_0.5	LO_SB03_0.5	---	---
				04-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1326974-013	ES1326974-014	ES1326974-015	---	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	1.0	<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	1.8	<0.5	---	---
Pyrene	129-00-0	0.5	mg/kg	<0.5	0.9	<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	0.7	<0.5	---	---
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	0.6	<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	5.0	<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	160	<100	---	---
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	---	---
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	160	<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	180	<100	---	---
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	---	---
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	180	<50	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LO_MW05_0.1	LI_SB05_0.5	LO_SB03_0.5	---	---
				04-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1326974-013	ES1326974-014	ES1326974-015	---	---
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued								
^ >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	---	---
^ 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	---	---
EP231: Perfluorinated Compounds								
PFOS	1763-23-1	0.0005	mg/kg	<0.0005	---	<0.0005	---	---
PFOA	335-67-1	0.0005	mg/kg	<0.0005	---	<0.0005	---	---
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	---	<0.005	---	---
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	105	---	86.0	---	---
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	107	---	93.0	---	---
Toluene-D8	2037-26-5	0.1	%	106	---	96.2	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	99.7	---	95.0	---	---
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	67.6	76.8	78.8	---	---
2-Chlorophenol-D4	93951-73-6	0.1	%	88.7	92.3	95.6	---	---
2,4,6-Tribromophenol	118-79-6	0.1	%	48.9	79.4	75.4	---	---
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	100	94.4	94.9	---	---
Anthracene-d10	1719-06-8	0.1	%	90.4	78.9	90.4	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	106	92.7	96.4	---	---
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	93.4	93.3	---	---
Toluene-D8	2037-26-5	0.1	%	93.4	81.6	85.0	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	93.2	75.9	90.6	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

LO_MW05_0.1	LI_SB05_0.5	LO_SB03_0.5	----	----
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Client sampling date / time

04-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	----	----
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Compound	CAS Number	LOR	Unit		
	ES1326974-013			ES1326974-014	ES1326974-015
				----	----

EP080S: TPH(V)/BTEX Surrogates - Continued



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_031213_SP

Client sampling date / time

10-DEC-2013 15:00

Compound	CAS Number	LOR	Unit	ES1326974-011	---	---	---	---
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EG020F: Dissolved 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	---	---	---	---

EG035F: Dissolved Mercury by FIMS

Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
---------	-----------	--------	------	---------	-----	-----	-----	-----

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	---	---	---	---
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	---	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_031213_SP

Client sampling date / time

10-DEC-2013 15:00

Compound	CAS Number	LOR	Unit	ES1326974-011				
EP080/071: Total Petroleum Hydrocarbons - Continued								
^ 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	----	----	----	----
^ 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	%	16.2	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	27.9	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	55.2	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	57.8	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	96.9	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	100	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	94.0	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	92.9	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	88.2	----	----	----	----



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
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



Our ref : ASET36559/ 39739 / 1 - 7

Your ref : ES1326974

NATA Accreditation No: 14484

18 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 seven samples, forwarded by Australian Laboratory Services Pty Ltd on 12 December 2013, for analysis for asbestos.

1.Introduction:Seven 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. ASET36559 / 39739 / 1. ES1326974 – LJ- SB07 - 0.5.**

Approx dimensions 8.6 cm x 8.5 cm x 7.6 cm

The sample consisted of a mixture of clayish soil, stones and plant matter.

No asbestos detected.

Sample No. 2. ASET36559 / 39739 / 2. ES1326974 – LJ- MW02 - 0.5.

Approx dimensions 8.5 cm x 7.6 cm x 7.5 cm

The sample consisted of a mixture of clayish soil, stones, plant matter, fibres[^] and fragments of plaster*.

Unidentified asbestiform mineral fibres[^] and mineral*detected. (An independent confirmatory analytical technique is advised.)

Sample No. 3. ASET36559 / 39739 / 3. ES1326974 – LJ- SB06 - 0.5.

Approx dimensions 8.7 cm x 7.6 cm x 7.4 cm

The sample consisted of a mixture of clayish soil, stones and plant matter.

No asbestos detected.

Sample No. 4. ASET36559 / 39739 / 4. ES1326974 – LJ- MW04 - 0.5.

Approx dimensions 8.3 cm x 8.2 cm x 7.5 cm

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of shale.

No asbestos detected.

Sample No. 5. ASET36559 / 39739 / 5. ES1326974 - LJ -SB02 – 1.0.

Approx dimensions 5.2 cm x 4.6 cm x 4.3 cm

The sample consisted of a mixture of clayish soil, stones and plant matter.

No asbestos detected.



Sample No. 6. ASET36559 / 39739 / 6. ES1326974 – LJ- SB03 - 0.5.

Approx dimensions 8.7 cm x 8.6 cm x 7.7 cm

The sample consisted of a mixture of clayish soil, stones and plant matter.

No asbestos detected.

Sample No. 7. ASET36559 / 39739 / 7. ES1326974 – LJ - SB04 - 0.5.

Approx dimensions 8.4 cm x 8.3 cm x 7.6 cm

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of brick.

No asbestos detected.

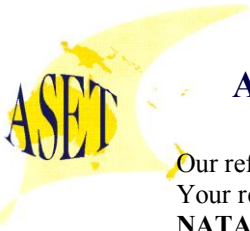
Analysed and reported by,

A handwritten signature in black ink, appearing to read "Laxman Dias", is written over a light grey rectangular background.

**Laxman Dias. BSc
Analyst / Approved Identifier.
Approved Signatory**



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



AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD

ABN 36 088 095 112

Our ref : ASET36621/ 39801 / 1 - 3

Your ref : ES1326974

NATA Accreditation No: 14484

19 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 three samples, forwarded by Australian Laboratory Services Pty Ltd on 17 December 2013, for analysis for asbestos.

1. Introduction: Three 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. ASET36621 / 39801 / 1. ES1326974 - 013 - LO - MW05 - 0.1.**

Approx dimensions 7.0 cm x 7.0 cm x 3.0 cm

The sample consisted of a mixture of sandy soil, stones and plant matter.

No asbestos detected.

Sample No. 2. ASET36621 / 39801 / 2. ES1326974 - 014 - LI - SB05 - 0.3.

Approx dimensions 12.0 cm x 10.0 cm x 5.65 cm

The sample consisted of a mixture of blackish clayish soil, coal like material, stones and plant matter.

No asbestos detected.

Sample No. 3. ASET36621 / 39801 / 3. ES1326974 - 015 - LO - SB03 - 0.1.

Approx dimensions 10.0 cm x 10.0 cm x 5.0 cm

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster and shale.

No asbestos detected.

Analysed and reported by,

**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.**

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

QUALITY CONTROL REPORT

Work Order	: ES1326974	Page	: 1 of 32
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
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Project	: PROJECT SYMPHONY	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: LIDDELL	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 19-DEC-2013
Sampler	: S.P	No. of samples received	: 14
Order number	: 0224189	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 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>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
		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 (%)
EA055: Moisture Content (QC Lot: 3211639)									
ES1326941-008	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	11.2	11.6	4.0	0% - 50%
ES1326974-001	LJ_SB07_0.5	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	20.0	19.8	1.1	0% - 50%
EA055: Moisture Content (QC Lot: 3216837)									
ES1326974-015	LO_SB03_0.5	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	27.3	26.4	3.6	0% - 20%
ES1327313-005	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	14.0	15.2	7.8	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 3214293)									
EB1329819-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	8	25.3	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	9	9	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	11	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	21	18	14.4	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	24	24	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	53	50	7.1	0% - 50%
ES1326974-004	LJ_MW04_0.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	35	35	0.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	36	38	4.5	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	9	8	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	17	17	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	15	16	7.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	48	46	4.3	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 3218262)									
EP1309522-022	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	4	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	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	5	6	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	8	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	22	24	7.9	No Limit
ES1326941-012	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	32.9	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	14	8	56.8	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	36	32	10.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	26	27	0.0	No Limit
EG005T: Zinc	7440-66-6	5	mg/kg	89	87	3.2	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 (%)	
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3214294)										
EB1329819-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit	
ES1326974-004	LJ_MW04_0.5	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: 3218263)										
EP1309522-022	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit	
ES1326941-012	Anonymous	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	LJ_SB07_0.5	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	
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3216122)										
ES1327373-006	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit	
ES1327373-019	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit	
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3207956)										
ES1326974-001	LJ_SB07_0.5	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	
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3216013)										
ES1327422-025	Anonymous	EP074: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP074: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
				106-42-3						
		EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: ortho-Xylene	95-47-6	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	
ES1327521-016	Anonymous	EP074: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP074: 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 (%)	
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3216013) - continued										
ES1327521-016	Anonymous	EP074: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: ortho-Xylene	95-47-6	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: 3207956)										
ES1326974-001	LJ_SB07_0.5	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	
EP074B: Oxygenated Compounds (QC Lot: 3216013)										
ES1327422-025	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	
ES1327521-016	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: 3207956)										
ES1326974-001	LJ_SB07_0.5	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
EP074C: Sulfonated Compounds (QC Lot: 3216013)										
ES1327422-025	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1327521-016	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
EP074D: Fumigants (QC Lot: 3207956)										
ES1326974-001	LJ_SB07_0.5	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	
EP074D: Fumigants (QC Lot: 3216013)										



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: 3216013) - continued									
ES1327422-025	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
ES1327521-016	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: 3207956)									
ES1326974-001	LJ_SB07_0.5	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

EP074E: Halogenated Aliphatic Compounds (QC Lot: 3216013)



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: 3216013) - continued									
ES1327422-025	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		
ES1327521-016	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



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: 3216013) - continued									
ES1327521-016	Anonymous	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: 3207956)									
ES1326974-001	LJ_SB07_0.5	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		
EP074F: Halogenated Aromatic Compounds (QC Lot: 3216013)									
ES1327422-025	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
ES1327521-016	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: 3216013) - continued									
ES1327521-016	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: 3207956)									
ES1326974-001	LJ_SB07_0.5	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
EP074G: Trihalomethanes (QC Lot: 3216013)									
ES1327422-025	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
ES1327521-016	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: 3207956)									
ES1326974-001	LJ_SB07_0.5	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3216013)									
ES1327422-025	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
ES1327521-016	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3208644)									
ES1326954-001	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
		ES1326974-007	LJ_SB04_0.5	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



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: 3208644) - continued									
ES1326974-007	LJ_SB04_0.5	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)A: Phenolic Compounds (QC Lot: 3216003)									
ES1327422-025	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
ES1327422-036	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
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3208644)									
ES1326954-001	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



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: 3208644) - continued									
ES1326954-001	Anonymous	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
ES1326974-007	LJ_SB04_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
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3216003)									
ES1327422-025	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



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: 3216003) - continued									
ES1327422-025	Anonymous	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
ES1327422-036	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
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3207954)									
ES1326974-001	LJ_SB07_0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1326974-007	LJ_SB04_0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3208643)									
ES1326954-001	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
ES1326974-007	LJ_SB04_0.5	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	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: 3208643) - continued									
ES1326974-007	LJ_SB04_0.5	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: 3216002)									
ES1327422-025	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
ES1327422-036	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: 3216012)									
ES1327422-025	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1327521-016	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3207954)									
ES1326974-001	LJ_SB07_0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1326974-007	LJ_SB04_0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3208643)									
ES1326954-001	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
ES1326974-007	LJ_SB04_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: 3216002)									
ES1327422-025	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
ES1327422-036	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: 3216012)									
ES1327422-025	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1327521-016	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 3207954)									
ES1326974-001	LJ_SB07_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	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	106-42-3 95-47-6	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 (%)	
EP080: BTEXN (QC Lot: 3207954) - continued										
ES1326974-001	LJ_SB07_0.5	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
ES1326974-007	LJ_SB04_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	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: 3216012)										
ES1327422-025	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	
ES1327521-016	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	
EP231: Perfluorinated Compounds (QC Lot: 3215778)										
ES1326974-013	LO_MW05_0.1	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	
ES1327422-036	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				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: Chromium	7440-47-3	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: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	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 (%)	
EG020F: Dissolved Metals by ICP-MS (QC Lot: 3211082) - continued										
ES1326974-011	R01_031213_SP	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: Chromium	7440-47-3	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: Nickel	7440-02-0	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	
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	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3209314)										
ES1326853-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1326853-011	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3209314)										
ES1326853-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1326853-011	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
EP080: BTEXN (QC Lot: 3209314)										
ES1326853-001	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	
ES1326853-011	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							
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: 3214293)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	120	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	108	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	119	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	109	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	117	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	112	81	133	
EG005T: Total Metals by ICP-AES (QCLot: 3218262)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	103	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	114	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	94.7	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	102	81	133	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3214294)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	88.3	66	112	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3218263)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	88.0	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	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3216122)									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	98.0	57.4	117	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3207956)									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	90.1	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	89.9	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	88.2	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	89.4	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	90.6	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	89.2	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	89.7	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	88.0	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	81.9	61	131	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3216013)									



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: 3216013) - continued									
EP074: Benzene	71-43-2	0.5	mg/kg	<0.5	1 mg/kg	98.1	64	118	
EP074: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	94.9	65	133	
EP074: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	98.6	65	127	
EP074: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	91.6	69	127	
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	91.7	64	126	
EP074: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	98.1	65	119	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	90.9	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	89.8	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	87.8	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	90.2	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	88.7	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	90.6	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	88.2	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	85.2	61	131	
EP074B: Oxygenated Compounds (QCLot: 3207956)									
EP074: Vinyl Acetate	108-05-4	1 5	mg/kg mg/kg	---- <5	10 mg/kg ----	53.0 ----	29.6 ----	156 ----	
EP074: 2-Butanone (MEK)	78-93-3	1 5	mg/kg mg/kg	---- <5	10 mg/kg ----	117 ----	58 ----	136 ----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1 5	mg/kg mg/kg	---- <5	10 mg/kg ----	107 ----	54 ----	138 ----	
EP074: 2-Hexanone (MBK)	591-78-6	1 5	mg/kg mg/kg	---- <5	10 mg/kg ----	109 ----	54 ----	136 ----	
EP074B: Oxygenated Compounds (QCLot: 3216013)									
EP074: Vinyl Acetate	108-05-4	1 5	mg/kg mg/kg	---- <5	10 mg/kg ----	30.1 ----	29.6 ----	156 ----	
EP074: 2-Butanone (MEK)	78-93-3	1 5	mg/kg mg/kg	---- <5	10 mg/kg ----	113 ----	58 ----	136 ----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1 5	mg/kg mg/kg	---- <5	10 mg/kg ----	95.2 ----	54 ----	138 ----	
EP074: 2-Hexanone (MBK)	591-78-6	1 5	mg/kg mg/kg	---- <5	10 mg/kg ----	91.1 ----	54 ----	136 ----	
EP074C: Sulfonated Compounds (QCLot: 3207956)									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	79.2	54	126	
EP074C: Sulfonated Compounds (QCLot: 3216013)									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	87.2	54	126	
EP074D: Fumigants (QCLot: 3207956)									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	79.4	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: 3207956) - continued									
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	83.3	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	81.1	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	100	66	126	
EP074D: Fumigants (QCLot: 3216013)									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	86.5	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	90.7	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	71.7	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	71.0	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	94.9	66	126	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3207956)									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	87.1	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	94.8	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	108	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	97.2	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	93.4	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	96.4	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	96.6	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	87.0	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	94.2	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	99.7	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	99.2	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	88.5	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	92.1	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	82.1	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	93.5	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	105	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	107	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	110	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	96.2	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	87.7	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	85.0	54	128	



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: 3207956) - continued									
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	88.5	55	129	
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	104	56	132	
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	109	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	83.0	19.8	134	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	97.6	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	87.2	48	136	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3216013)									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	135	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	118	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	144	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	109	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	116	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	113	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	102	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	80.1	43	129	
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	94.0	62	130	
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	98.6	66	132	
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	94.4	66	132	
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	94.4	62	126	
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	95.2	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	79.3	59	125	
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	97.8	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	94.4	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	96.9	65	127	
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	94.7	70	130	
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	97.1	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	96.2	67	143	
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	78.7	62	122	
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	80.1	54	128	
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	78.4	55	129	
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	96.1	56	132	
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	91.5	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	85.2	19.8	134	



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
EP074E: Halogenated Aliphatic Compounds (QCLot: 3216013) - continued								
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	92.2	53	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	80.8	48	136
EP074F: Halogenated Aromatic Compounds (QCLot: 3207956)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	100	70	128
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	97.5	67	127
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	95.3	64	130
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	93.5	62	130
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	94.9	63	129
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	97.3	63	129
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	100	66	128
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	86.0	54	134
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	98.9	60	132
EP074F: Halogenated Aromatic Compounds (QCLot: 3216013)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	95.8	70	128
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	93.5	67	127
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	94.6	64	130
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	91.1	62	130
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	87.6	63	129
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	85.2	63	129
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	91.4	66	128
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	78.2	54	134
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	86.3	60	132
EP074G: Trihalomethanes (QCLot: 3207956)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	100	62	120
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	88.5	61	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	90.4	63	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	93.8	60	126
EP074G: Trihalomethanes (QCLot: 3216013)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	99.0	62	120
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	71.1	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	83.8	60	126
EP074H: Naphthalene (QCLot: 3207956)								
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	108	63	133
		5	mg/kg	<5	----	----	----	----
EP074H: Naphthalene (QCLot: 3216013)								
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	117	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: 3208644)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	108	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	110	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	81.0	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	90.6	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	86.5	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	85.1	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	85.7	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	27.0	3.9	57	
EP075(SIM)A: Phenolic Compounds (QCLot: 3216003)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	89.9	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	95.6	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	90.0	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	88.9	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	77.1	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	90.1	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	90.9	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	89.3	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	81.0	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	78.8	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	43.2	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3208644)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	93.4	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	114	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	115	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	98.7	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	99.4	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	96.4	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	98.6	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	96.1	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	105	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	95.5	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	104	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	88.7	76	122	



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: 3208644) - continued									
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	92.1	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	96.2	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	83.4	72.4	114	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3216003)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	93.8	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	99.7	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	96.3	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	96.6	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	97.3	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	98.1	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	96.8	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	98.0	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	98.0	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	97.0	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	96.2	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	92.0	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	89.1	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	86.5	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	90.9	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207954)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	98.6	68.4	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3208643)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	108	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	124	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	103	64	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3216002)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	96.4	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	97.1	64	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3216012)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	80.4	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207954)									
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: 3208643)									
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	128	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 Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208643) - continued									
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	106	63	131	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216002)									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	97.3	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	84.9	63	131	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216012)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	81.4	68.4	128	
EP080: BTEXN (QCLot: 3207954)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	95.6	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	99.7	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	0.5	mg/kg	<0.5	2 mg/kg	94.9	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	96.7	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	103	62	138	
EP080: BTEXN (QCLot: 3216012)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	81.3	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	84.8	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	92.4	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	87.2	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	91.0	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	90.6	62	138	
EP231: Perfluorinated Compounds (QCLot: 3215778)									
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	85.3	54	146	
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	92.4	54	134	
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	129	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	
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: 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: 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	



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	
EG020F: Dissolved Metals by ICP-MS (QCLot: 3211082) - continued									
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	104	81	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	85.1	80	116	
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	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3211225)									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	72.0	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	67.1	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	65.1	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	67.9	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	77.7	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	77.9	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	76.7	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	77.1	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	80.0	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	79.9	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	79.9	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	92.5	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	74.8	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	72.6	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	72.2	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	71.9	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: 3209314)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	96.9	75	127	



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	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3211228)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	88.9	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	99.3	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	100	62	120	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209314)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	97.5	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3211228)									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	94.9	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	98.7	67	127	
EP080: BTEXN (QCLot: 3209314)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	111	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	102	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	98.2	70	120	
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	95.3	69	121	
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	99.5	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	108	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	High
EG005T: Total Metals by ICP-AES (QCLot: 3214293)								
EB1329819-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	108	70	130	
		EG005T: Cadmium	7440-43-9	50 mg/kg	106	70	130	
		EG005T: Chromium	7440-47-3	50 mg/kg	108	70	130	
		EG005T: Copper	7440-50-8	125 mg/kg	107	70	130	
		EG005T: Lead	7439-92-1	125 mg/kg	105	70	130	
		EG005T: Nickel	7440-02-0	50 mg/kg	104	70	130	
		EG005T: Zinc	7440-66-6	125 mg/kg	98.3	70	130	
EG005T: Total Metals by ICP-AES (QCLot: 3218262)								
EP1309522-022	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	100	70	130	
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	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: 3218262) - continued							
EP1309522-022	Anonymous	EG005T: Copper	7440-50-8	125 mg/kg	113	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	92.9	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	111	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	96.5	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3214294)							
EB1329819-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	97.2	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3218263)							
EP1309522-022	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	91.0	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3208625)							
ES1326974-001	LJ_SB07_0.5	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	107	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3216122)							
ES1327373-006	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	102	70	130
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3216013)							
ES1327422-025	Anonymous	EP074: Benzene	71-43-2	2.5 mg/kg	89.6	70	130
		EP074: Toluene	108-88-3	2.5 mg/kg	94.6	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3207956)							
ES1326974-001	LJ_SB07_0.5	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	81.3	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	84.1	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3216013)							
ES1327422-025	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	80.3	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	87.7	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3207956)							
ES1326974-001	LJ_SB07_0.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	94.6	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3216013)							
ES1327422-025	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	96.1	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3208644)							
ES1326954-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	97.9	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	106	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	66.2	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	76.7	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	38.5	20	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3216003)							
ES1327422-025	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	83.6	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	93.0	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	75.0	60	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: 3216003) - continued							
ES1327422-025	Anonymous	EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	89.8	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	38.2	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3208644)							
ES1326954-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	106	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	115	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3216003)							
ES1327422-025	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	91.4	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	93.2	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207954)							
ES1326974-001	LJ_SB07_0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	87.9	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3208643)							
ES1326954-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	87.0	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	86.9	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	75.8	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3216002)							
ES1327422-025	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	78.3	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	80.6	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	74.6	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3216012)							
ES1327422-025	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	83.1	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207954)							
ES1326974-001	LJ_SB07_0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	88.1	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208643)							
ES1326954-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	110	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	79.8	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	58.2	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216002)							
ES1327422-025	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	102	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	76.5	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	61.9	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216012)							
ES1327422-025	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	82.6	70	130
EP080: BTEXN (QCLot: 3207954)							
ES1326974-001	LJ_SB07_0.5	EP080: Benzene	71-43-2	2.5 mg/kg	74.2	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	86.1	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: 3207954) - continued							
ES1326974-001	LJ_SB07_0.5	EP080: Ethylbenzene	100-41-4	2.5 mg/kg	84.2	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	84.4	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	87.9	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	96.8	70	130
EP080: BTEXN (QCLot: 3216012)							
ES1327422-025	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	90.5	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	88.9	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	89.2	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	91.9	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	83.2	70	130
EP231: Perfluorinated Compounds (QCLot: 3215778)							
ES1326974-013	LO_MW05_0.1	EP231: PFOS	1763-23-1	0.0025 mg/kg	79.7	54	146
		EP231: PFOA	335-67-1	0.0025 mg/kg	86.7	54	134
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FTS)	27619-97-2	0.0125 mg/kg	78.4	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
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: 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: 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: Nickel	7440-02-0	0.2 mg/L	102	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
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209314)							
ES1326853-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	110	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209314)							
ES1326853-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	106	70	130
EP080: BTEXN (QCLot: 3209314)							
ES1326853-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	78.7	70	130
		EP080: Toluene	108-88-3	25 µg/L	104	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
EP080: BTEXN (QCLot: 3209314) - continued							
ES1326853-001	Anonymous	EP080: Ethylbenzene	100-41-4	25 µg/L	102	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	107	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	111	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	117	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: 3207954)										
ES1326974-001	LJ_SB07_0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	87.9	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207954)										
ES1326974-001	LJ_SB07_0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	88.1	----	70	130	----	----
EP080: BTEXN (QCLot: 3207954)										
ES1326974-001	LJ_SB07_0.5	EP080: Benzene	71-43-2	2.5 mg/kg	74.2	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	86.1	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	84.2	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	84.4	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	87.9	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	96.8	----	70	130	----	----
EP074E: Halogenated Aliphatic Compounds (QCLot: 3207956)										
ES1326974-001	LJ_SB07_0.5	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	81.3	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	84.1	----	70	130	----	----
EP074F: Halogenated Aromatic Compounds (QCLot: 3207956)										
ES1326974-001	LJ_SB07_0.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	94.6	----	70	130	----	----
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3208625)										
ES1326974-001	LJ_SB07_0.5	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	107	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3208643)										
ES1326954-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	87.0	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	86.9	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	75.8	----	52	132	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208643)										
ES1326954-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	110	----	73	137	----	----



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 Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208643) - continued										
ES1326954-001	Anonymous	EP071: >C16 - C34 Fraction	----	4800 mg/kg	79.8	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	58.2	----	52	132	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3208644)										
ES1326954-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	97.9	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	106	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	66.2	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	76.7	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	38.5	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3208644)										
ES1326954-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	106	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	115	----	70	130	----	----
EG005T: Total Metals by ICP-AES (QCLot: 3214293)										
EB1329819-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	108	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	106	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	108	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	107	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	105	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	104	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	98.3	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3214294)										
EB1329819-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	97.2	----	70	130	----	----
EP231: Perfluorinated Compounds (QCLot: 3215778)										
ES1326974-013	LO_MW05_0.1	EP231: PFOS	1763-23-1	0.0025 mg/kg	79.7	----	54	146	----	----
		EP231: PFOA	335-67-1	0.0025 mg/kg	86.7	----	54	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	78.4	----	56	138	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3216002)										
ES1327422-025	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	78.3	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	80.6	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	74.6	----	52	132	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216002)										
ES1327422-025	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	102	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	76.5	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	61.9	----	52	132	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3216003)										
ES1327422-025	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	83.6	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	93.0	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	75.0	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	89.8	----	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	
EP075(SIM)A: Phenolic Compounds (QCLot: 3216003) - continued											
ES1327422-025	Anonymous	EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	38.2	----	20	130	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3216003)											
ES1327422-025	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	91.4	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	93.2	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3216012)											
ES1327422-025	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	83.1	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216012)											
ES1327422-025	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	82.6	----	70	130	----	----	
EP080: BTEXN (QCLot: 3216012)											
ES1327422-025	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	90.5	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	88.9	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	89.2	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	86.0	----	70	130	----	----	
		106-42-3									
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	91.9	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	83.2	----	70	130	----	----	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3216013)											
ES1327422-025	Anonymous	EP074: Benzene	71-43-2	2.5 mg/kg	89.6	----	70	130	----	----	
		EP074: Toluene	108-88-3	2.5 mg/kg	94.6	----	70	130	----	----	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3216013)											
ES1327422-025	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	80.3	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	87.7	----	70	130	----	----	
EP074F: Halogenated Aromatic Compounds (QCLot: 3216013)											
ES1327422-025	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	96.1	----	70	130	----	----	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3216122)											
ES1327373-006	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	102	----	70	130	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3218262)											
EP1309522-022	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	100	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	111	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	113	----	70	130	----	----	
		EG005T: Lead	7439-92-1	125 mg/kg	92.9	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	111	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	125 mg/kg	96.5	----	70	130	----	----	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3218263)											
EP1309522-022	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	91.0	----	70	130	----	----	

Sub-Matrix: **WATER**

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



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: 3209314)											
ES1326853-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	110	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209314)											
ES1326853-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	106	----	70	130	----	----	
EP080: BTEXN (QCLot: 3209314)											
ES1326853-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	78.7	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	104	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	102	----	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	111	----	70	130	----	----	
	EP080: Naphthalene	91-20-3		25 µg/L	117	----	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: 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: 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: Nickel	7440-02-0	0.2 mg/L	102	----	70	130	----	----	
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	104	----	70	130	----	----	

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326974	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	: LIDDELL	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 19-DEC-2013
Sampler	: S.P	No. of samples received	: 14
Order number	: 0224189	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 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							
Snap Lock Bag (EA055-103) LO_SB03_0.5	03-DEC-2013	----	----	----	17-DEC-2013	17-DEC-2013	✓
Soil Glass Jar - Unpreserved (EA055-103) LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	03-DEC-2013	----	----	----	13-DEC-2013	17-DEC-2013	✓
Soil Glass Jar - Unpreserved (EA055-103) LI_SB05_0.5	03-DEC-2013	----	----	----	17-DEC-2013	17-DEC-2013	✓
Soil Glass Jar - Unpreserved (EA055-103) LO_MW05_0.1	04-DEC-2013	----	----	----	17-DEC-2013	18-DEC-2013	✓
EG005T: Total Metals by ICP-AES							
Snap Lock Bag (EG005T) LO_SB03_0.5	03-DEC-2013	18-DEC-2013	01-JUN-2014	✓	18-DEC-2013	01-JUN-2014	✓
Soil Glass Jar - Unpreserved (EG005T) LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	03-DEC-2013	16-DEC-2013	01-JUN-2014	✓	17-DEC-2013	01-JUN-2014	✓
Soil Glass Jar - Unpreserved (EG005T) LI_SB05_0.5	03-DEC-2013	18-DEC-2013	01-JUN-2014	✓	18-DEC-2013	01-JUN-2014	✓
Soil Glass Jar - Unpreserved (EG005T) LO_MW05_0.1	04-DEC-2013	18-DEC-2013	02-JUN-2014	✓	18-DEC-2013	02-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) LO_SB03_0.5	03-DEC-2013	18-DEC-2013	31-DEC-2013	✓	19-DEC-2013	31-DEC-2013	✓
Soil Glass Jar - Unpreserved (EG035T) LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	03-DEC-2013	16-DEC-2013	31-DEC-2013	✓	17-DEC-2013	31-DEC-2013	✓
Soil Glass Jar - Unpreserved (EG035T) LI_SB05_0.5	03-DEC-2013	18-DEC-2013	31-DEC-2013	✓	19-DEC-2013	31-DEC-2013	✓
Soil Glass Jar - Unpreserved (EG035T) LO_MW05_0.1	04-DEC-2013	18-DEC-2013	01-JAN-2014	✓	19-DEC-2013	01-JAN-2014	✓
EP066: Polychlorinated Biphenyls (PCB)							
Snap Lock Bag (EP066) LO_SB03_0.5	03-DEC-2013	17-DEC-2013	17-DEC-2013	✓	18-DEC-2013	26-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP066) LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	03-DEC-2013	12-DEC-2013	17-DEC-2013	✓	13-DEC-2013	21-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP066) LO_MW05_0.1	04-DEC-2013	17-DEC-2013	18-DEC-2013	✓	18-DEC-2013	26-JAN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Snap Lock Bag (EP071) LO_SB03_0.5	03-DEC-2013	17-DEC-2013	17-DEC-2013	✓	17-DEC-2013	26-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP071) LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	03-DEC-2013	13-DEC-2013	17-DEC-2013	✓	14-DEC-2013	22-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP071) LI_SB05_0.5	03-DEC-2013	17-DEC-2013	17-DEC-2013	✓	17-DEC-2013	26-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP071) LO_MW05_0.1	04-DEC-2013	17-DEC-2013	18-DEC-2013	✓	17-DEC-2013	26-JAN-2014	✓
EP074D: Fumigants							
Snap Lock Bag (EP074) LO_SB03_0.5	03-DEC-2013	17-DEC-2013	10-DEC-2013	✘	17-DEC-2013	10-DEC-2013	✘
Soil Glass Jar - Unpreserved (EP074) LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	03-DEC-2013	12-DEC-2013	10-DEC-2013	✘	15-DEC-2013	10-DEC-2013	✘
Soil Glass Jar - Unpreserved (EP074) LO_MW05_0.1	04-DEC-2013	17-DEC-2013	11-DEC-2013	✘	17-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
EP074E: Halogenated Aliphatic Compounds							
Snap Lock Bag (EP074) LO_SB03_0.5	03-DEC-2013	17-DEC-2013	10-DEC-2013	✖	17-DEC-2013	10-DEC-2013	✖
Soil Glass Jar - Unpreserved (EP074) LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	03-DEC-2013	12-DEC-2013	10-DEC-2013	✖	15-DEC-2013	10-DEC-2013	✖
Soil Glass Jar - Unpreserved (EP074) LO_MW05_0.1	04-DEC-2013	17-DEC-2013	11-DEC-2013	✖	17-DEC-2013	11-DEC-2013	✖
EP074F: Halogenated Aromatic Compounds							
Snap Lock Bag (EP074) LO_SB03_0.5	03-DEC-2013	17-DEC-2013	10-DEC-2013	✖	17-DEC-2013	10-DEC-2013	✖
Soil Glass Jar - Unpreserved (EP074) LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	03-DEC-2013	12-DEC-2013	10-DEC-2013	✖	15-DEC-2013	10-DEC-2013	✖
Soil Glass Jar - Unpreserved (EP074) LO_MW05_0.1	04-DEC-2013	17-DEC-2013	11-DEC-2013	✖	17-DEC-2013	11-DEC-2013	✖
EP074A: Monocyclic Aromatic Hydrocarbons							
Snap Lock Bag (EP074) LO_SB03_0.5	03-DEC-2013	17-DEC-2013	10-DEC-2013	✖	17-DEC-2013	10-DEC-2013	✖
Soil Glass Jar - Unpreserved (EP074) LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	03-DEC-2013	12-DEC-2013	10-DEC-2013	✖	15-DEC-2013	10-DEC-2013	✖
Soil Glass Jar - Unpreserved (EP074) LO_MW05_0.1	04-DEC-2013	17-DEC-2013	11-DEC-2013	✖	17-DEC-2013	11-DEC-2013	✖
EP074H: Naphthalene							
Snap Lock Bag (EP074) LO_SB03_0.5	03-DEC-2013	17-DEC-2013	10-DEC-2013	✖	17-DEC-2013	10-DEC-2013	✖
Soil Glass Jar - Unpreserved (EP074) LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	03-DEC-2013	12-DEC-2013	10-DEC-2013	✖	15-DEC-2013	10-DEC-2013	✖
Soil Glass Jar - Unpreserved (EP074) LO_MW05_0.1	04-DEC-2013	17-DEC-2013	11-DEC-2013	✖	17-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
EP074B: Oxygenated Compounds							
Snap Lock Bag (EP074) LO_SB03_0.5	03-DEC-2013	17-DEC-2013	10-DEC-2013	✖	17-DEC-2013	10-DEC-2013	✖
Soil Glass Jar - Unpreserved (EP074) LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	03-DEC-2013	12-DEC-2013	10-DEC-2013	✖	15-DEC-2013	10-DEC-2013	✖
Soil Glass Jar - Unpreserved (EP074) LO_MW05_0.1	04-DEC-2013	17-DEC-2013	11-DEC-2013	✖	17-DEC-2013	11-DEC-2013	✖
EP074C: Sulfonated Compounds							
Snap Lock Bag (EP074) LO_SB03_0.5	03-DEC-2013	17-DEC-2013	10-DEC-2013	✖	17-DEC-2013	10-DEC-2013	✖
Soil Glass Jar - Unpreserved (EP074) LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	03-DEC-2013	12-DEC-2013	10-DEC-2013	✖	15-DEC-2013	10-DEC-2013	✖
Soil Glass Jar - Unpreserved (EP074) LO_MW05_0.1	04-DEC-2013	17-DEC-2013	11-DEC-2013	✖	17-DEC-2013	11-DEC-2013	✖
EP074G: Trihalomethanes							
Snap Lock Bag (EP074) LO_SB03_0.5	03-DEC-2013	17-DEC-2013	10-DEC-2013	✖	17-DEC-2013	10-DEC-2013	✖
Soil Glass Jar - Unpreserved (EP074) LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	03-DEC-2013	12-DEC-2013	10-DEC-2013	✖	15-DEC-2013	10-DEC-2013	✖
Soil Glass Jar - Unpreserved (EP074) LO_MW05_0.1	04-DEC-2013	17-DEC-2013	11-DEC-2013	✖	17-DEC-2013	11-DEC-2013	✖
EP075(SIM)A: Phenolic Compounds							
Snap Lock Bag (EP075(SIM)) LO_SB03_0.5	03-DEC-2013	17-DEC-2013	17-DEC-2013	✔	17-DEC-2013	26-JAN-2014	✔
Soil Glass Jar - Unpreserved (EP075(SIM)) LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	03-DEC-2013	13-DEC-2013	17-DEC-2013	✔	14-DEC-2013	22-JAN-2014	✔
Soil Glass Jar - Unpreserved (EP075(SIM)) LI_SB05_0.5	03-DEC-2013	17-DEC-2013	17-DEC-2013	✔	17-DEC-2013	26-JAN-2014	✔
Soil Glass Jar - Unpreserved (EP075(SIM)) LO_MW05_0.1	04-DEC-2013	17-DEC-2013	18-DEC-2013	✔	17-DEC-2013	26-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							
Snap Lock Bag (EP075(SIM)) LO_SB03_0.5	03-DEC-2013	17-DEC-2013	17-DEC-2013	✓	17-DEC-2013	26-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	03-DEC-2013	13-DEC-2013	17-DEC-2013	✓	14-DEC-2013	22-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) LI_SB05_0.5	03-DEC-2013	17-DEC-2013	17-DEC-2013	✓	17-DEC-2013	26-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) LO_MW05_0.1	04-DEC-2013	17-DEC-2013	18-DEC-2013	✓	17-DEC-2013	26-JAN-2014	✓
EP080: BTEXN							
Snap Lock Bag (EP080) LO_SB03_0.5	03-DEC-2013	17-DEC-2013	17-DEC-2013	✓	17-DEC-2013	17-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	03-DEC-2013	12-DEC-2013	17-DEC-2013	✓	15-DEC-2013	17-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) LI_SB05_0.5	03-DEC-2013	17-DEC-2013	17-DEC-2013	✓	17-DEC-2013	17-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) LO_MW05_0.1	04-DEC-2013	17-DEC-2013	18-DEC-2013	✓	17-DEC-2013	18-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK, TSC 7 TRIP SPIKE,	28-NOV-2013	12-DEC-2013	12-DEC-2013	✓	15-DEC-2013	12-DEC-2013	✗
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Snap Lock Bag (EP080) LO_SB03_0.5	03-DEC-2013	17-DEC-2013	17-DEC-2013	✓	17-DEC-2013	17-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	03-DEC-2013	12-DEC-2013	17-DEC-2013	✓	15-DEC-2013	17-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) LI_SB05_0.5	03-DEC-2013	17-DEC-2013	17-DEC-2013	✓	17-DEC-2013	17-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) LO_MW05_0.1	04-DEC-2013	17-DEC-2013	18-DEC-2013	✓	17-DEC-2013	18-DEC-2013	✓
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK, TSC 7 TRIP SPIKE,	28-NOV-2013	12-DEC-2013	12-DEC-2013	✓	15-DEC-2013	12-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
EP231: Perfluorinated Compounds							
Snap Lock Bag (EP231) LO_SB03_0.5	03-DEC-2013	17-DEC-2013	01-JUN-2014	✓	17-DEC-2013	26-JAN-2014	✓
Soil Glass Jar - Unpreserved (EP231) LO_MW05_0.1	04-DEC-2013	17-DEC-2013	02-JUN-2014	✓	17-DEC-2013	26-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
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) R01_031213_SP	10-DEC-2013	---	08-JUN-2014	----	13-DEC-2013	08-JUN-2014	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) R01_031213_SP	10-DEC-2013	---	07-JAN-2014	----	14-DEC-2013	07-JAN-2014	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) R01_031213_SP	10-DEC-2013	13-DEC-2013	17-DEC-2013	✓	14-DEC-2013	22-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_031213_SP	10-DEC-2013	13-DEC-2013	17-DEC-2013	✓	14-DEC-2013	22-JAN-2014	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) R01_031213_SP	10-DEC-2013	15-DEC-2013	24-DEC-2013	✓	15-DEC-2013	24-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Amber VOC Vial - Sulfuric Acid (EP080) R01_031213_SP	10-DEC-2013	15-DEC-2013	24-DEC-2013	✓	15-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	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)	4	39	10.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	4	34	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	4	38	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	39	10.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	4	39	10.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	38	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	3	21	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	34	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	21	9.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	34	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	21	9.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	34	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	21	9.5	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)							
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
TPH Volatiles/BTEX	EP080	2	20	10.0	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	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	5	20.0	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)							
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	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	5	20.0	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)							
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
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
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)
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.
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.



Analytical Methods	Method	Matrix	Method Descriptions
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)
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
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.
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.

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						
Snap Lock Bag LO_SB03_0.5	17-DEC-2013	10-DEC-2013	7	17-DEC-2013	10-DEC-2013	7
Soil Glass Jar - Unpreserved LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	12-DEC-2013	10-DEC-2013	2	15-DEC-2013	10-DEC-2013	5
Soil Glass Jar - Unpreserved LO_MW05_0.1	17-DEC-2013	11-DEC-2013	6	17-DEC-2013	11-DEC-2013	6
EP074B: Oxygenated Compounds						
Snap Lock Bag LO_SB03_0.5	17-DEC-2013	10-DEC-2013	7	17-DEC-2013	10-DEC-2013	7
Soil Glass Jar - Unpreserved LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	12-DEC-2013	10-DEC-2013	2	15-DEC-2013	10-DEC-2013	5
Soil Glass Jar - Unpreserved LO_MW05_0.1	17-DEC-2013	11-DEC-2013	6	17-DEC-2013	11-DEC-2013	6
EP074C: Sulfonated 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
EP074C: Sulfonated Compounds - Analysis Holding Time Compliance						
Snap Lock Bag LO_SB03_0.5	17-DEC-2013	10-DEC-2013	7	17-DEC-2013	10-DEC-2013	7
Soil Glass Jar - Unpreserved LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	12-DEC-2013	10-DEC-2013	2	15-DEC-2013	10-DEC-2013	5
Soil Glass Jar - Unpreserved LO_MW05_0.1	17-DEC-2013	11-DEC-2013	6	17-DEC-2013	11-DEC-2013	6
EP074D: Fumigants						
Snap Lock Bag LO_SB03_0.5	17-DEC-2013	10-DEC-2013	7	17-DEC-2013	10-DEC-2013	7
Soil Glass Jar - Unpreserved LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	12-DEC-2013	10-DEC-2013	2	15-DEC-2013	10-DEC-2013	5
Soil Glass Jar - Unpreserved LO_MW05_0.1	17-DEC-2013	11-DEC-2013	6	17-DEC-2013	11-DEC-2013	6
EP074E: Halogenated Aliphatic Compounds						
Snap Lock Bag LO_SB03_0.5	17-DEC-2013	10-DEC-2013	7	17-DEC-2013	10-DEC-2013	7
Soil Glass Jar - Unpreserved LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	12-DEC-2013	10-DEC-2013	2	15-DEC-2013	10-DEC-2013	5
Soil Glass Jar - Unpreserved LO_MW05_0.1	17-DEC-2013	11-DEC-2013	6	17-DEC-2013	11-DEC-2013	6
EP074F: Halogenated Aromatic Compounds						
Snap Lock Bag LO_SB03_0.5	17-DEC-2013	10-DEC-2013	7	17-DEC-2013	10-DEC-2013	7
Soil Glass Jar - Unpreserved LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	12-DEC-2013	10-DEC-2013	2	15-DEC-2013	10-DEC-2013	5
Soil Glass Jar - Unpreserved LO_MW05_0.1	17-DEC-2013	11-DEC-2013	6	17-DEC-2013	11-DEC-2013	6
EP074G: Trihalomethanes						



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 - Analysis Holding Time Compliance						
Snap Lock Bag LO_SB03_0.5	17-DEC-2013	10-DEC-2013	7	17-DEC-2013	10-DEC-2013	7
Soil Glass Jar - Unpreserved LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	12-DEC-2013	10-DEC-2013	2	15-DEC-2013	10-DEC-2013	5
Soil Glass Jar - Unpreserved LO_MW05_0.1	17-DEC-2013	11-DEC-2013	6	17-DEC-2013	11-DEC-2013	6
EP074H: Naphthalene						
Snap Lock Bag LO_SB03_0.5	17-DEC-2013	10-DEC-2013	7	17-DEC-2013	10-DEC-2013	7
Soil Glass Jar - Unpreserved LJ_SB07_0.5, LJ_SB06_0.5, LJ_SB02_1.0, LJ_SB04_0.5 LJ_MW02_0.5, LJ_MW04_0.5, LJ_SB03_0.5	12-DEC-2013	10-DEC-2013	2	15-DEC-2013	10-DEC-2013	5
Soil Glass Jar - Unpreserved LO_MW05_0.1	17-DEC-2013	11-DEC-2013	6	17-DEC-2013	11-DEC-2013	6
EP080/071: Total Petroleum Hydrocarbons						
Soil Glass Jar - Unpreserved TRIP BLANK, TSC 7 TRIP SPIKE,	----	----	----	15-DEC-2013	12-DEC-2013	3
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013						
Soil Glass Jar - Unpreserved TRIP BLANK, TSC 7 TRIP SPIKE,	----	----	----	15-DEC-2013	12-DEC-2013	3
EP080: BTEXN						
Soil Glass Jar - Unpreserved TRIP BLANK, TSC 7 TRIP SPIKE,	----	----	----	15-DEC-2013	12-DEC-2013	3

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.

15009
15009
15009

CHAIN OF CUSTODY
ALS Laboratory
Phone No: 3

ALS Laboratory
15009
15009
15009

TURNAROUND REQUIREMENTS:
 Standard TAT may be longer for some test's.
 Non Standard or urgent TAT (Tat due date): **3 days TAT**

FOR LABORATORY USE ONLY (Circle)
Yes No N/A

CLIENT: **Suburban**
OFFICE: **Suburban**
PROJECT: Project Synbury
ORDER NUMBER: **024444**
PROJECT MANAGER: **Joe Ferrery**
CONTACT PH: **0129974468**
SITE: **BAYSWATER / MODEL**
SAMPLER: **Joe Ferrery**
SAMPLER MOBILE: **0422990694**
COC emailed to ALST? (YES / NO): **NO**
EDD FORMAT (for default):
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):

REINQUISHED BY: **RS** DATE/TIME: **09-12-13 14:50**
REINQUISHED BY: **RS** DATE/TIME: **16/12/13 17:00**
RECEIVED BY: **RS** DATE/TIME: **10-12-13 19:00**

COMMENT/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE ID	DATE / TIME	MATRIX	CONTAINER INFORMATION		ANALYSIS REQUIRED INCLUDING SITES (Nil, State Codes must be listed as either state price, when benefits are required, specify total (undiluted or diluted) or dissolved (diluted or undiluted) required).										Additional Information		
				TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	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)	5-24 TRHC6-C60/BTEXN, PAH, Phenols	VOC Target Scan	PCB	pH (1:5)	PFOS/PFOA	Asbestos (absence/presence)	Particle Sizing to 75µm (Sieve)	Organic Matter plus Total Organic Carbon (EPC04)			
	1	10-MW03-0.2	4.12.13 soil		1	X	X	X	X									
	2	10-MW04-1.0	~11-~11-		1	X	X	X	X									
	3	10-SB05-0.5				X	X	X	X									
	4	10-SB09-0.5				X	X	X	X									
	5	10-MW02-0.5				X	X	X	X									
	6	10-MW04-0.5		Subcon / Forward Lab / Spill WO Lab / Analysis: Agg-Adetris		X	X	X	X									
	7	10-MW05-0.5		Organised By / Date: RS		X	X	X	X									
	8	10-04213-TA		Reinquished By / Date: RS		X	X	X	X									
	9	Trip Spite		Concrete / Counter: RS		X	X	X	X									
	10	Trip B6M4		WO No: ES1326975		X	X	X	X									
	11	LT-SB03-2.8		Attach By PO / Internal Street:		X	X	X	X									
	12	LT-MW08-3.6				X	X	X	X									
	13	LI-MW01-3.2				X	X	X	X									

Environmental Division
Sydney
Work Order
ES1326975
Telephone: +61-2-8784 8555

NR
14 LS-MW02-3.0
15 TSC

TAT

RS EX-44-C9
RS EX-66-C9

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1326975

<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 : 0244198</p> <p>C-O-C number : ----</p> <p>Site : LIDDELL</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>
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Dates

<p>Date Samples Received : 10-DEC-2013</p> <p>Client Requested Due Date : 16-DEC-2013</p>	<p>Issue Date : 11-DEC-2013 09:39</p> <p>Scheduled Reporting Date : 16-DEC-2013</p>
---------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------

Delivery Details

<p>Mode of Delivery : Carrier</p> <p>No. of coolers/boxes : 1 HARD</p> <p>Security Seal : Intact.</p>	<p>Temperature : 3.9°C SYD - Ice present</p> <p>No. of samples received : 14</p> <p>No. of samples analysed : 14</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.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample LO_MW05_0.5 was not received.**
- 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 - EA032	Electrical Conductivity (Saturated)	SOIL - EP004 (Carbon)	Total Organic Carbon (Calc.)	SOIL - EP066 (solids)	Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids)	Volatile Organic Compounds	SOIL - EP231	Perfluorooctyl Acids and Sulfonates	SOIL - S-18 (NO MOIST)	TRH(C6-C9)/BTEXN with No Moisture	SOIL - S-27	TRH/BTEXN/PAH/Phenols/8Metals
ES1326975-001	04-DEC-2013 15:00	LU_MW03_0.2																✓
ES1326975-002	04-DEC-2013 15:00	LO_MW14_1.0										✓	✓					✓
ES1326975-003	04-DEC-2013 15:00	LO_SB05_0.5	✓						✓	✓								✓
ES1326975-004	04-DEC-2013 15:00	LJ_SB09_0.5	✓						✓	✓								✓
ES1326975-005	04-DEC-2013 15:00	LS_MW02_0.5	✓															✓
ES1326975-006	04-DEC-2013 15:00	LO_MW04_0.5	✓						✓	✓								✓
ES1326975-009	04-DEC-2013 15:00	TRIP SPIKE														✓		
ES1326975-010	04-DEC-2013 15:00	TRIP BLANK														✓		
ES1326975-011	04-DEC-2013 15:00	LI_SB03_2.8																✓
ES1326975-012	04-DEC-2013 15:00	LI_MW08_3.6																✓
ES1326975-013	04-DEC-2013 15:00	LI_MW01_3.2																✓
ES1326975-014	04-DEC-2013 15:00	LS_MW02_3.0			✓	✓												✓
ES1326975-015	04-DEC-2013 15:00	TSC														✓		

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-05	TRH/BTEXN/8 Metals
ES1326975-008	04-DEC-2013 15:00	R01_041213_TA	✓	

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 |
|-------------------------------|-------|---------------------|
-

CERTIFICATE OF ANALYSIS

Work Order	: ES1326975	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	: 0244198		
C-O-C number	: ----	Date Samples Received	: 10-DEC-2013
Sampler	: ----	Issue Date	: 16-DEC-2013
Site	: LIDDELL		
Quote number	: SY/794/13	No. of samples received	: 14
		No. of samples analysed	: 14

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

- **EP074: Samples not received in a suitable timeframe to conduct the analysis EP074 within the recommended holding time.**
- **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.**
- **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
Pabi Subba	Senior Organic Chemist	Sydney Organics



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LU_MW03_0.2	LO_MW14_1.0	LO_SB05_0.5	LJ_SB09_0.5	LS_MW02_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	ES1326975-001	ES1326975-002	ES1326975-003	ES1326975-004	ES1326975-005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	15.6	15.0	21.6	11.8	25.2
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	12	<5	<5	14
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	20	25	14	15	37
Copper	7440-50-8	5	mg/kg	17	10	16	14	17
Lead	7439-92-1	5	mg/kg	6	13	<5	<5	21
Nickel	7440-02-0	2	mg/kg	24	15	25	27	38
Zinc	7440-66-6	5	mg/kg	82	47	66	39	103
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	<0.5	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	<5	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	<5	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	<5	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	<5	<5	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LU_MW03_0.2	LO_MW14_1.0	LO_SB05_0.5	LJ_SB09_0.5	LS_MW02_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	ES1326975-001	ES1326975-002	ES1326975-003	ES1326975-004	ES1326975-005
EP074D: Fumigants - Continued								
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	<5	<5	----
Chloromethane	74-87-3	5	mg/kg	----	<5	<5	<5	----
Vinyl chloride	75-01-4	5	mg/kg	----	<5	<5	<5	----
Bromomethane	74-83-9	5	mg/kg	----	<5	<5	<5	----
Chloroethane	75-00-3	5	mg/kg	----	<5	<5	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	<5	<5	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<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	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LU_MW03_0.2	LO_MW14_1.0	LO_SB05_0.5	LJ_SB09_0.5	LS_MW02_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	ES1326975-001	ES1326975-002	ES1326975-003	ES1326975-004	ES1326975-005
EP074F: Halogenated Aromatic Compounds - Continued								
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
EP074H: Naphthalene								
Naphthalene	91-20-3	5	mg/kg	----	<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

				LU_MW03_0.2	LO_MW14_1.0	LO_SB05_0.5	LJ_SB09_0.5	LS_MW02_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	ES1326975-001	ES1326975-002	ES1326975-003	ES1326975-004	ES1326975-005
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

				LU_MW03_0.2	LO_MW14_1.0	LO_SB05_0.5	LJ_SB09_0.5	LS_MW02_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	ES1326975-001	ES1326975-002	ES1326975-003	ES1326975-004	ES1326975-005
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
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	%	----	----	88.0	92.4	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	72.7	79.9	88.1	----
Toluene-D8	2037-26-5	0.1	%	----	76.3	80.6	82.4	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	79.0	90.8	95.6	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	105	108	102	103	108
2-Chlorophenol-D4	93951-73-6	0.1	%	93.2	111	109	106	111
2,4,6-Tribromophenol	118-79-6	0.1	%	54.3	73.0	46.9	65.5	65.7
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	101	106	100	103	107
Anthracene-d10	1719-06-8	0.1	%	87.6	92.6	89.0	89.6	92.5
4-Terphenyl-d14	1718-51-0	0.1	%	77.6	82.8	77.1	78.2	81.4
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	100	107	97.9	109	83.6
Toluene-D8	2037-26-5	0.1	%	89.8	95.1	92.5	94.9	91.2
4-Bromofluorobenzene	460-00-4	0.1	%	82.7	89.1	88.4	95.3	89.8



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LO_MW04_0.5	TRIP SPIKE	TRIP BLANK	LI_SB03_2.8	LI_MW08_3.6
				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	ES1326975-006	ES1326975-009	ES1326975-010	ES1326975-011	ES1326975-012
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	19.9	----	----	22.6	19.9
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	12	----	----	7	5
Cadmium	7440-43-9	1	mg/kg	<1	----	----	<1	<1
Chromium	7440-47-3	2	mg/kg	22	----	----	19	16
Copper	7440-50-8	5	mg/kg	21	----	----	18	13
Lead	7439-92-1	5	mg/kg	14	----	----	13	13
Nickel	7440-02-0	2	mg/kg	20	----	----	7	8
Zinc	7440-66-6	5	mg/kg	94	----	----	48	65
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<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

				LO_MW04_0.5	TRIP SPIKE	TRIP BLANK	LI_SB03_2.8	LI_MW08_3.6
				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	ES1326975-006	ES1326975-009	ES1326975-010	ES1326975-011	ES1326975-012
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

				LO_MW04_0.5	TRIP SPIKE	TRIP BLANK	LI_SB03_2.8	LI_MW08_3.6
				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	ES1326975-006	ES1326975-009	ES1326975-010	ES1326975-011	ES1326975-012
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
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

				LO_MW04_0.5	TRIP SPIKE	TRIP BLANK	LI_SB03_2.8	LI_MW08_3.6
				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	ES1326975-006	ES1326975-009	ES1326975-010	ES1326975-011	ES1326975-012
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	<10	60	<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	68	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	38	<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	0.6	<0.2	<0.2	<0.2



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LO_MW04_0.5	TRIP SPIKE	TRIP BLANK	LI_SB03_2.8	LI_MW08_3.6
				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	ES1326975-006	ES1326975-009	ES1326975-010	ES1326975-011	ES1326975-012
EP080: BTEXN - Continued								
Toluene	108-88-3	0.5	mg/kg	<0.5	15.1	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1.9	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	8.9	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	4.0	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	30.5	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	12.9	<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	%	86.4	----	----	----	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	88.9	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	84.6	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	99.5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	106	----	----	104	110
2-Chlorophenol-D4	93951-73-6	0.1	%	104	----	----	107	113
2,4,6-Tribromophenol	118-79-6	0.1	%	62.4	----	----	66.0	73.7
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	103	----	----	105	102
Anthracene-d10	1719-06-8	0.1	%	90.6	----	----	93.6	87.6
4-Terphenyl-d14	1718-51-0	0.1	%	79.3	----	----	80.9	78.7
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	112	92.1	92.4	78.3	89.8
Toluene-D8	2037-26-5	0.1	%	96.8	88.8	91.2	85.4	86.1
4-Bromofluorobenzene	460-00-4	0.1	%	95.3	87.2	86.7	85.7	83.6



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LI_MW01_3.2	LS_MW02_3.0	TSC	---	---
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1326975-013	ES1326975-014	ES1326975-015	---	---
EA032: Electrical Conductivity (saturated paste)								
Electrical Conductivity (Saturated Paste)	---	1	µS/cm	---	3330	---	---	---
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	---	1.0	%	20.4	13.3	---	---	---
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	7	14	---	---	---
Cadmium	7440-43-9	1	mg/kg	<1	<1	---	---	---
Chromium	7440-47-3	2	mg/kg	18	27	---	---	---
Copper	7440-50-8	5	mg/kg	18	41	---	---	---
Lead	7439-92-1	5	mg/kg	12	35	---	---	---
Nickel	7440-02-0	2	mg/kg	25	16	---	---	---
Zinc	7440-66-6	5	mg/kg	65	75	---	---	---
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	---	---	---
EP004: Organic Matter								
Organic Matter	---	0.5	%	---	<0.5	---	---	---
Total Organic Carbon	---	0.5	%	---	<0.5	---	---	---
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	---	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LI_MW01_3.2	LS_MW02_3.0	TSC	---	---
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1326975-013	ES1326975-014	ES1326975-015	---	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	95	---	---
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	105	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	65	---	---
>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								



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				LI_MW01_3.2	LS_MW02_3.0	TSC	----	----
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1326975-013	ES1326975-014	ES1326975-015	----	----
EP080: BTEXN - Continued								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.8	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	20.8	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	2.4	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	11.4	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	4.6	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	40.0	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	16.0	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	103	107	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	105	110	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	64.8	63.4	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	103	102	----	----	----
Anthracene-d10	1719-06-8	0.1	%	92.5	91.1	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	78.4	77.0	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	86.9	86.6	82.2	----	----
Toluene-D8	2037-26-5	0.1	%	96.8	85.9	82.9	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	86.6	96.5	91.1	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_041213_TA

Client sampling date / time

04-DEC-2013 15:00

Compound	CAS Number	LOR	Unit	ES1326975-008	---	---	---	---
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EG020F: Dissolved 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	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---

EG035F: Dissolved 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	---	---	---	---
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	---	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	---	---	---	---
^ Sum of BTEX	---	1	µg/L	<1	---	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	---	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_041213_TA

Client sampling date / time

04-DEC-2013 15:00

Compound	CAS Number	LOR	Unit	ES1326975-008	---	---	---	---
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	90.3	---	---	---	---
Toluene-D8	2037-26-5	0.1	%	93.7	---	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	98.8	---	---	---	---



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



AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD

ABN 36 088 095 112

Our ref : ASET36534/ 39714 / 1 - 4

Your ref : ES1326975

NATA Accreditation No: 14484

13 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 four samples, forwarded by Australian Laboratory Services Pty Ltd on 11 December 2013, for analysis for asbestos.

1. Introduction: Four 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. ASET36534 / 39714 / 1. ES1326975 - 003 - LO SB05 - 0.5.**
Approx dimensions 3.5 cm x 3.2 cm x 3.1 cm
The sample consisted of a mixture of soil, stones, plant matter and fragments of plaster.
No asbestos detected.

Sample No. 2. ASET36534 / 39714 / 2. ES1326975 - 004 - LJ SB09 - 0.5.
Approx dimensions 8.2 cm x 7.8 cm x 7.6 cm
The sample consisted of a mixture of soil, stones and plant matter.
No asbestos detected.

Sample No. 3. ASET36534 / 39714 / 3. ES1326975 - 005 - LS MW02 - 0.5.
Approx dimensions 8.7 cm x 8.4 cm x 8.1 cm
The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of soft fibrous material containing organic fibres..
No asbestos detected.

Sample No. 4. ASET36534 / 39714 / 4. ES1326975 - 006 - LO MW04 - 0.5.
Approx dimensions 8.8 cm x 8.4 cm x 8.3 cm
The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of cement.
No asbestos detected.

Analysed and reported by,

Laxman Dias. BSc
Analyst / Approved Identifier
Approved Signatory



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

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

QUALITY CONTROL REPORT

Work Order	: ES1326975	Page	: 1 of 23
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	: LIDDELL	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: ----	No. of samples received	: 14
Order number	: 0244198	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 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
Pabi Subba	Senior Organic Chemist	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 (%)
EA032: Electrical Conductivity (saturated paste) (QC Lot: 3206089)									
ES1326975-014	LS_MW02_3.0	EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	3330	3000	10.4	0% - 20%
EA055: Moisture Content (QC Lot: 3208515)									
ES1326975-003	LO_SB05_0.5	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%
EG005T: Total Metals by ICP-AES (QC Lot: 3210645)									
ES1326930-010	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	15	13	18.4	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	6	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	11	12	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	18	20	9.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	26	23	14.2	No Limit
ES1326975-014	LS_MW02_3.0	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	27	27	0.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	16	16	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	14	12	16.2	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	41	39	4.3	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	35	22	44.9	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	75	76	0.0	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3210646)									
ES1326930-010	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326975-014	LS_MW02_3.0	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP004: Organic Matter (QC Lot: 3206092)									
ES1326825-001	Anonymous	EP004: Organic Matter	----	0.5	%	1.9	1.7	7.5	No Limit
		EP004: Total Organic Carbon	----	0.5	%	1.1	1.0	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	LO_MW14_1.0	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



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	LO_MW14_1.0	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
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	LO_MW14_1.0	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	LO_MW14_1.0	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	LO_MW14_1.0	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	LO_MW14_1.0	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



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	LO_MW14_1.0	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
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		



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: 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: 3207925)									
ES1326975-002	LO_MW14_1.0	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	LO_MW14_1.0	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)									



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 (%)
EP074H: Naphthalene (QC Lot: 3207925) - continued									
ES1326975-002	LO_MW14_1.0	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
EP075(SIM)A: Phenolic Compounds (QC Lot: 3206091)									
ES1326975-001	LU_MW03_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
ES1326975-013	LI_MW01_3.2	EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		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: 3206091)									
ES1326975-001	LU_MW03_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
		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



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: 3206091) - continued									
ES1326975-001	LU_MW03_0.2	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
ES1326975-013	LI_MW01_3.2	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
		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: 3206090)									
ES1326975-001	LU_MW03_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
ES1326975-013	LI_MW01_3.2	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 Petroleum Hydrocarbons (QC Lot: 3207924)									
ES1326975-002	LO_MW14_1.0	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	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1326978-011	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3206090)									



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: 3206090) - continued									
ES1326975-001	LU_MW03_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
ES1326975-013	LI_MW01_3.2	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
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3207924)									
ES1326975-002	LO_MW14_1.0	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)									
ES1326978-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1326978-011	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 3207924)									
ES1326975-002	LO_MW14_1.0	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	108-38-3 106-42-3	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
ES1326976-001	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
EP080: BTEXN (QC Lot: 3207968)									
ES1326978-002	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	108-38-3 106-42-3	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
ES1326978-011	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



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: 3207968) - continued									
ES1326978-011	Anonymous	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	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 (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 3210613)									
ES1326784-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0010	<0.0010	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.050	<0.050	0.0	No Limit
ES1326784-011	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0010	<0.0010	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.050	<0.050	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 3210612)									
ES1326707-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1326784-009	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3208036)									
ES1327009-001	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
ES1327010-002	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	470	490	3.0	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: 3209306)									
ES1326809-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1327009-009	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3208036)									
ES1327009-001	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



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 (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3208036) - continued									
ES1327009-001	Anonymous	EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
ES1327010-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	400	420	6.2	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3209306)									
ES1326809-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1327009-009	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 3209306)									
ES1326809-001	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
ES1327009-009	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



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: 3210645)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	118	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	109	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	114	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	107	81	133	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3210646)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	70.1	66	112	
EP004: Organic Matter (QCLot: 3206092)									
EP004: Organic Matter	----	0.5	%	<0.5	4.58 %	100	85	105	
EP004: Total Organic Carbon	----	0.5	%	<0.5	2.66 %	99.9	84	106	
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	----	----	----	----	



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: 3207925) - continued									
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	
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	



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	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3207925) - continued									
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	100	55	129	
EP074: 1,1,1,2-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	
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: 3206091)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	108	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	108	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	107	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	84.2	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	108	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	100	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	93.6	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	79.0	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	98.3	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	30.2	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3206091)									



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: 3206091) - continued									
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	115	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	116	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	115	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	106	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	108	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	106	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	108	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	90.9	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	93.9	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	113	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	106	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	110	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	95.0	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3206090)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	98.0	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	98.9	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	86.3	64	128	
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 Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3206090)									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	98.5	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	94.2	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	77.8	63	131	
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: 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	



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: BTEXN (QCLot: 3207924) - continued									
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	89.0	60	120	
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	
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	
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	

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	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 3210613)									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	105	80	118	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	92.5	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	103	81	111	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	106	80	112	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	91.8	83	111	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	81	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	111	80	116	
EG035F: Dissolved Mercury by FIMS (QCLot: 3210612)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	88.9	78	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3208036)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	82.9	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	93.1	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	103	62	120	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209306)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	84.2	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208036)									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	91.0	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	95.2	73.9	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	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208036) - continued									
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	104	67	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209306)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	84.7	75	127	
EP080: BTEXN (QCLot: 3209306)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	97.8	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	100	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	90.2	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	96.3	69	121	
	106-42-3								
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	110	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: 3210645)							
ES1326930-010	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	112	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	109	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	112	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	108	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	110	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	107	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3210646)							
ES1326930-010	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	85.2	70	130
EP004: Organic Matter (QCLot: 3206092)							
ES1326975-014	LS_MW02_3.0	EP004: Organic Matter	----	0.46 %	115	----	----
		EP004: Total Organic Carbon	----	0.27 %	114	----	----
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	LO_MW14_1.0	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	77.7	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: 3207925) - continued							
ES1326975-002	LO_MW14_1.0	EP074: Trichloroethene	79-01-6	2.5 mg/kg	89.5	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3207925)							
ES1326975-002	LO_MW14_1.0	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	90.4	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3206091)							
ES1326975-001	LU_MW03_0.2	EP075(SIM): Phenol	108-95-2	10 mg/kg	117	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	102	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	61.2	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	92.8	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	47.6	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3206091)							
ES1326975-001	LU_MW03_0.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	111	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	117	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3206090)							
ES1326975-001	LU_MW03_0.2	EP071: C10 - C14 Fraction	----	640 mg/kg	82.4	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	82.5	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	70.6	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207924)							
ES1326975-002	LO_MW14_1.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	90.2	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207968)							
ES1326978-002	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	112	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3206090)							
ES1326975-001	LU_MW03_0.2	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	104	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.2	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	54.6	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207924)							
ES1326975-002	LO_MW14_1.0	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	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	110	70	130
EP080: BTEXN (QCLot: 3207924)							
ES1326975-002	LO_MW14_1.0	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
		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



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: 3207968)								
ES1326978-002	Anonymous	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		
EP231: Perfluorinated Compounds (QCLot: 3206224)								
ES1326995-004	Anonymous	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	

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
EG020F: Dissolved Metals by ICP-MS (QCLot: 3210613)							
ES1326784-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	108	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	86.2	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	98.0	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	105	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	86.8	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	78.9	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	106	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 3210612)							
ES1326707-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	84.9	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3208036)							
ES1327009-004	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	115	74	150
		EP071: C15 - C28 Fraction	----	300 µg/L	105	77	153
		EP071: C29 - C36 Fraction	----	200 µg/L	84.3	67	153
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209306)							
ES1326809-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	125	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208036)							
ES1327009-004	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	108	74	150
		EP071: >C16 - C34 Fraction	----	350 µg/L	94.5	77	153
		EP071: >C34 - C40 Fraction	----	150 µg/L	98.4	67	153
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209306)							
ES1326809-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	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
EP080: BTEXN (QCLot: 3209306)							
ES1326809-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	102	70	130
		EP080: Toluene	108-88-3	25 µg/L	118	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	116	70	130
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	118	70	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	25 µg/L	106	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	113	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: 3206090)											
ES1326975-001	LU_MW03_0.2	EP071: C10 - C14 Fraction	----	640 mg/kg	82.4	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	82.5	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	70.6	----	52	132	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3206090)											
ES1326975-001	LU_MW03_0.2	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	104	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.2	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	54.6	----	52	132	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3206091)											
ES1326975-001	LU_MW03_0.2	EP075(SIM): Phenol	108-95-2	10 mg/kg	117	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	102	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	61.2	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	92.8	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	47.6	----	20	130	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3206091)											
ES1326975-001	LU_MW03_0.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	111	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	117	----	70	130	----	----	
EP004: Organic Matter (QCLot: 3206092)											
ES1326975-014	LS_MW02_3.0	EP004: Organic Matter	----	0.46 %	115	----	----	----	----	----	
		EP004: Total Organic Carbon	----	0.27 %	114	----	----	----	----	----	
EP231: Perfluorinated Compounds (QCLot: 3206224)											
ES1326995-004	Anonymous	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	----	----	



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								
EP231: Perfluorinated Compounds (QCLot: 3206224) - continued											
ES1326995-004	Anonymous	EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	66.1	----	56	138	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207924)											
ES1326975-002	LO_MW14_1.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	90.2	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207924)											
ES1326975-002	LO_MW14_1.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	91.2	----	70	130	----	----	
EP080: BTEXN (QCLot: 3207924)											
ES1326975-002	LO_MW14_1.0	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	LO_MW14_1.0	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	LO_MW14_1.0	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	90.4	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207968)											
ES1326978-002	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	112	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207968)											
ES1326978-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	110	----	70	130	----	----	
EP080: BTEXN (QCLot: 3207968)											
ES1326978-002	Anonymous	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	----	----	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3208625)											
ES1326974-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	107	----	70	130	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3210645)											
ES1326930-010	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	112	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	109	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	112	----	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: 3210645) - continued										
ES1326930-010	Anonymous	EG005T: Lead	7439-92-1	125 mg/kg	108	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	110	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	107	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3210646)										
ES1326930-010	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	85.2	----	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	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3208036)											
ES1327009-004	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	115	----	74	150	----	----	
		EP071: C15 - C28 Fraction	----	300 µg/L	105	----	77	153	----	----	
		EP071: C29 - C36 Fraction	----	200 µg/L	84.3	----	67	153	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208036)											
ES1327009-004	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	108	----	74	150	----	----	
		EP071: >C16 - C34 Fraction	----	350 µg/L	94.5	----	77	153	----	----	
		EP071: >C34 - C40 Fraction	----	150 µg/L	98.4	----	67	153	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209306)											
ES1326809-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	125	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209306)											
ES1326809-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	----	70	130	----	----	
EP080: BTEXN (QCLot: 3209306)											
ES1326809-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	102	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	118	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	116	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	118	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	106	----	70	130	----	----	
EP080: Naphthalene	91-20-3	25 µg/L	113	----	70	130	----	----			
EG035F: Dissolved Mercury by FIMS (QCLot: 3210612)											
ES1326707-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	84.9	----	70	130	----	----	
EG020F: Dissolved Metals by ICP-MS (QCLot: 3210613)											
ES1326784-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	108	----	70	130	----	----	
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	86.2	----	70	130	----	----	
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	98.0	----	70	130	----	----	
		EG020A-F: Copper	7440-50-8	0.2 mg/L	105	----	70	130	----	----	
		EG020A-F: Lead	7439-92-1	0.2 mg/L	86.8	----	70	130	----	----	
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	78.9	----	70	130	----	----	

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 Work Order : ES1326975
 Client : ENVIRO RESOURCES MANAGEMENT
 Project : Project Symphony



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
EG020F: Dissolved Metals by ICP-MS (QCLot: 3210613) - continued										
ES1326784-001	Anonymous	EG020A-F: Zinc	7440-66-6	0.2 mg/L	106	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326975	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	: LIDDELL	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: ----	No. of samples received	: 14
Order number	: 0244198	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 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
EA032: Electrical Conductivity (saturated paste)							
Soil Glass Jar - Unpreserved (EA032) LS_MW02_3.0	04-DEC-2013	----	----	----	11-DEC-2013	02-JUN-2014	✓
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103) LU_MW03_0.2, LO_MW14_1.0, LO_SB05_0.5, LJ_SB09_0.5, LS_MW02_0.5, LO_MW04_0.5, LI_SB03_2.8, LI_MW08_3.6, LI_MW01_3.2, LS_MW02_3.0	04-DEC-2013	----	----	----	12-DEC-2013	18-DEC-2013	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) LU_MW03_0.2, LO_MW14_1.0, LO_SB05_0.5, LJ_SB09_0.5, LS_MW02_0.5, LO_MW04_0.5, LI_SB03_2.8, LI_MW08_3.6, LI_MW01_3.2, LS_MW02_3.0	04-DEC-2013	13-DEC-2013	02-JUN-2014	✓	13-DEC-2013	02-JUN-2014	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) LU_MW03_0.2, LO_MW14_1.0, LO_SB05_0.5, LJ_SB09_0.5, LS_MW02_0.5, LO_MW04_0.5, LI_SB03_2.8, LI_MW08_3.6, LI_MW01_3.2, LS_MW02_3.0	04-DEC-2013	13-DEC-2013	01-JAN-2014	✓	16-DEC-2013	01-JAN-2014	✓
EP004: Organic Matter							
Soil Glass Jar - Unpreserved (EP004) LS_MW02_3.0	04-DEC-2013	11-DEC-2013	01-JAN-2014	✓	13-DEC-2013	01-JAN-2014	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) LO_SB05_0.5, LJ_SB09_0.5, LO_MW04_0.5	04-DEC-2013	12-DEC-2013	18-DEC-2013	✓	13-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	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Soil Glass Jar - Unpreserved (EP071)								
LU_MW03_0.2, LO_SB05_0.5, LS_MW02_0.5, LI_SB03_2.8, LI_MW01_3.2,	LO_MW14_1.0, LJ_SB09_0.5, LO_MW04_0.5, LI_MW08_3.6, LS_MW02_3.0	04-DEC-2013	13-DEC-2013	18-DEC-2013	✔	13-DEC-2013	22-JAN-2014	✔
EP074D: Fumigants								
Soil Glass Jar - Unpreserved (EP074)								
LO_MW14_1.0, LJ_SB09_0.5,	LO_SB05_0.5, LO_MW04_0.5	04-DEC-2013	12-DEC-2013	11-DEC-2013	✖	13-DEC-2013	11-DEC-2013	✖
EP074E: Halogenated Aliphatic Compounds								
Soil Glass Jar - Unpreserved (EP074)								
LO_MW14_1.0, LJ_SB09_0.5,	LO_SB05_0.5, LO_MW04_0.5	04-DEC-2013	12-DEC-2013	11-DEC-2013	✖	13-DEC-2013	11-DEC-2013	✖
EP074F: Halogenated Aromatic Compounds								
Soil Glass Jar - Unpreserved (EP074)								
LO_MW14_1.0, LJ_SB09_0.5,	LO_SB05_0.5, LO_MW04_0.5	04-DEC-2013	12-DEC-2013	11-DEC-2013	✖	13-DEC-2013	11-DEC-2013	✖
EP074A: Monocyclic Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP074)								
LO_MW14_1.0, LJ_SB09_0.5,	LO_SB05_0.5, LO_MW04_0.5	04-DEC-2013	12-DEC-2013	11-DEC-2013	✖	13-DEC-2013	11-DEC-2013	✖
EP074H: Naphthalene								
Soil Glass Jar - Unpreserved (EP074)								
LO_MW14_1.0, LJ_SB09_0.5,	LO_SB05_0.5, LO_MW04_0.5	04-DEC-2013	12-DEC-2013	11-DEC-2013	✖	13-DEC-2013	11-DEC-2013	✖
EP074B: Oxygenated Compounds								
Soil Glass Jar - Unpreserved (EP074)								
LO_MW14_1.0, LJ_SB09_0.5,	LO_SB05_0.5, LO_MW04_0.5	04-DEC-2013	12-DEC-2013	11-DEC-2013	✖	13-DEC-2013	11-DEC-2013	✖
EP074C: Sulfonated Compounds								
Soil Glass Jar - Unpreserved (EP074)								
LO_MW14_1.0, LJ_SB09_0.5,	LO_SB05_0.5, LO_MW04_0.5	04-DEC-2013	12-DEC-2013	11-DEC-2013	✖	13-DEC-2013	11-DEC-2013	✖
EP074G: Trihalomethanes								
Soil Glass Jar - Unpreserved (EP074)								
LO_MW14_1.0, LJ_SB09_0.5,	LO_SB05_0.5, LO_MW04_0.5	04-DEC-2013	12-DEC-2013	11-DEC-2013	✖	13-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
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) LU_MW03_0.2, LO_MW14_1.0, LO_SB05_0.5, LJ_SB09_0.5, LS_MW02_0.5, LO_MW04_0.5, LI_SB03_2.8, LI_MW08_3.6, LI_MW01_3.2, LS_MW02_3.0	04-DEC-2013	13-DEC-2013	18-DEC-2013	✓	13-DEC-2013	22-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) LU_MW03_0.2, LO_MW14_1.0, LO_SB05_0.5, LJ_SB09_0.5, LS_MW02_0.5, LO_MW04_0.5, LI_SB03_2.8, LI_MW08_3.6, LI_MW01_3.2, LS_MW02_3.0	04-DEC-2013	13-DEC-2013	18-DEC-2013	✓	13-DEC-2013	22-JAN-2014	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) LU_MW03_0.2, LO_MW14_1.0, LO_SB05_0.5, LJ_SB09_0.5, LS_MW02_0.5, LO_MW04_0.5, TRIP SPIKE, TRIP BLANK, LI_SB03_2.8, LI_MW08_3.6, LI_MW01_3.2, LS_MW02_3.0, TSC	04-DEC-2013	12-DEC-2013	18-DEC-2013	✓	13-DEC-2013	18-DEC-2013	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) LU_MW03_0.2, LO_MW14_1.0, LO_SB05_0.5, LJ_SB09_0.5, LS_MW02_0.5, LO_MW04_0.5, TRIP SPIKE, TRIP BLANK, LI_SB03_2.8, LI_MW08_3.6, LI_MW01_3.2, LS_MW02_3.0, TSC	04-DEC-2013	12-DEC-2013	18-DEC-2013	✓	13-DEC-2013	18-DEC-2013	✓
EP231: Perfluorinated Compounds							
Soil Glass Jar - Unpreserved (EP231) LO_MW14_1.0	04-DEC-2013	11-DEC-2013	02-JUN-2014	✓	11-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
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) R01_041213_TA	04-DEC-2013	---	02-JUN-2014	----	13-DEC-2013	02-JUN-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
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) R01_041213_TA	04-DEC-2013	---	01-JAN-2014	----	13-DEC-2013	01-JAN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Amber Glass Bottle - Unpreserved (EP071) R01_041213_TA	04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	13-DEC-2013	21-JAN-2014	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) R01_041213_TA	04-DEC-2013	14-DEC-2013	18-DEC-2013	✓	14-DEC-2013	18-DEC-2013	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080) R01_041213_TA	04-DEC-2013	14-DEC-2013	18-DEC-2013	✓	14-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)							
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
Organic Matter	EP004	1	2	50.0	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
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	2	50.0	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	18	11.1	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	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)							
Electrical Conductivity (Saturated Paste)	EA032	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Organic Matter	EP004	1	2	50.0	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
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	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	18	5.6	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	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)							
Electrical Conductivity (Saturated Paste)	EA032	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Organic Matter	EP004	1	2	50.0	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
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	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	18	5.6	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	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)							
Organic Matter	EP004	1	2	50.0	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



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							
Matrix Spikes (MS) - Continued							
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	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	18	5.6	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	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: **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)							
Dissolved Mercury by FIMS	EG035F	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	16	12.5	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	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	6.3	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	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	6.3	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	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	6.3	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	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 (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)
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 - 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.
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.



Analytical Methods	Method	Matrix	Method Descriptions
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)
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)
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)
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)
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.
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.

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 LO_MW14_1.0, LO_SB05_0.5, LJ_SB09_0.5, LO_MW04_0.5	12-DEC-2013	11-DEC-2013	1	13-DEC-2013	11-DEC-2013	2
EP074B: Oxygenated Compounds						
Soil Glass Jar - Unpreserved LO_MW14_1.0, LO_SB05_0.5, LJ_SB09_0.5, LO_MW04_0.5	12-DEC-2013	11-DEC-2013	1	13-DEC-2013	11-DEC-2013	2
EP074C: Sulfonated Compounds						
Soil Glass Jar - Unpreserved LO_MW14_1.0, LO_SB05_0.5, LJ_SB09_0.5, LO_MW04_0.5	12-DEC-2013	11-DEC-2013	1	13-DEC-2013	11-DEC-2013	2
EP074D: Fumigants						
Soil Glass Jar - Unpreserved LO_MW14_1.0, LO_SB05_0.5, LJ_SB09_0.5, LO_MW04_0.5	12-DEC-2013	11-DEC-2013	1	13-DEC-2013	11-DEC-2013	2
EP074E: Halogenated Aliphatic Compounds						
Soil Glass Jar - Unpreserved LO_MW14_1.0, LO_SB05_0.5, LJ_SB09_0.5, LO_MW04_0.5	12-DEC-2013	11-DEC-2013	1	13-DEC-2013	11-DEC-2013	2
EP074F: Halogenated Aromatic 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
EP074F: Halogenated Aromatic Compounds - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved LO_MW14_1.0, LO_SB05_0.5, LJ_SB09_0.5, LO_MW04_0.5	12-DEC-2013	11-DEC-2013	1	13-DEC-2013	11-DEC-2013	2
EP074G: Trihalomethanes						
Soil Glass Jar - Unpreserved LO_MW14_1.0, LO_SB05_0.5, LJ_SB09_0.5, LO_MW04_0.5	12-DEC-2013	11-DEC-2013	1	13-DEC-2013	11-DEC-2013	2
EP074H: Naphthalene						
Soil Glass Jar - Unpreserved LO_MW14_1.0, LO_SB05_0.5, LJ_SB09_0.5, LO_MW04_0.5	12-DEC-2013	11-DEC-2013	1	13-DEC-2013	11-DEC-2013	2

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.

Subcon / Forward Lab / Split WO
 Lab / Analysis: ENVIRONMENTAL TOI - 041213.SY
 Organised By / Date: Frank
 Relinquished By / Date: Frank



CHAIN OF CUSTODY
 ALS Laboratory
 please tick →

CLIENT: **FRM**
 OFFICE: **Sydney**
 PROJECT: Project Symphony
 ORDER NUMBER: **0224164**
 PROJECT MANAGER: **Joe Keating**
 SAMPLER: **Sean Penza**
 COD emailed to ALS? (YES / NO)
 Email Reports to (will default to PM if no other addresses are listed): **John.Keating@netrail.com.au**
 Email Invoices to (will default to PM if no other addresses are listed): **SymphonyManagement@trm.com**

TURNAROUND REQUIREMENTS:
 Standard TAT (last due date): **2 day TAT**
 Non-Standard or urgent TAT (last due date):
 ALS QUOTE NO.: SY79413
 SITE: **BAYSWATER 410082**

CONTACT PH:
 SAMPLER MOBILE: **0402614304**
 EDD FORMAT (or default):
 RELINQUISHED BY: **Sean Penza**
 DATE/TIME: **5/12/13**

COD emailed to ALS? (YES / NO)
 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):

FOR LABORATORY USE ONLY (Circle):
 Curbway Seal Intact? Yes No **CYA**
 Free Ice / Ice on top of the person upon receipt? Yes No **NA**
 Random Sample Temperature on Receipt: **26 °C**
 Other comment:
 RECEIVED BY: **Frank Als**
 DATE/TIME: **10.12.13 19.00**

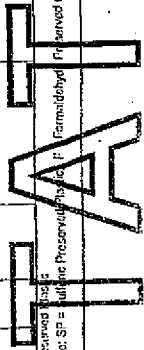
ALS USE	SAMPLE DETAILS		CONTAINER INFORMATION		ANALYSIS REQUIRED (including BUTES (ND). Note Codes must be linked to allowed units price) Where Metals are required, specify Total (unfiltered) or dissolved (filtered) basis required)	Additional Information
	MATRIX	DATE / TIME	TYPE & PRESERVATIVE (code or below)	TOTAL CONTAINERS		
LAB ID <td>SAMPLE ID <td>DATE / TIME <td>TYPE & PRESERVATIVE (code or below) <td>TOTAL CONTAINERS <td>ANALYSIS REQUIRED (including BUTES (ND). Note Codes must be linked to allowed units price) Where Metals are required, specify Total (unfiltered) or dissolved (filtered) basis required)</td> <td>Additional Information</td> </td></td></td></td>	SAMPLE ID <td>DATE / TIME <td>TYPE & PRESERVATIVE (code or below) <td>TOTAL CONTAINERS <td>ANALYSIS REQUIRED (including BUTES (ND). Note Codes must be linked to allowed units price) Where Metals are required, specify Total (unfiltered) or dissolved (filtered) basis required)</td> <td>Additional Information</td> </td></td></td>	DATE / TIME <td>TYPE & PRESERVATIVE (code or below) <td>TOTAL CONTAINERS <td>ANALYSIS REQUIRED (including BUTES (ND). Note Codes must be linked to allowed units price) Where Metals are required, specify Total (unfiltered) or dissolved (filtered) basis required)</td> <td>Additional Information</td> </td></td>	TYPE & PRESERVATIVE (code or below) <td>TOTAL CONTAINERS <td>ANALYSIS REQUIRED (including BUTES (ND). Note Codes must be linked to allowed units price) Where Metals are required, specify Total (unfiltered) or dissolved (filtered) basis required)</td> <td>Additional Information</td> </td>	TOTAL CONTAINERS <td>ANALYSIS REQUIRED (including BUTES (ND). Note Codes must be linked to allowed units price) Where Metals are required, specify Total (unfiltered) or dissolved (filtered) basis required)</td> <td>Additional Information</td>	ANALYSIS REQUIRED (including BUTES (ND). Note Codes must be linked to allowed units price) Where Metals are required, specify Total (unfiltered) or dissolved (filtered) basis required)	Additional Information
1	LJ-5802-2.0	11/12/13 0830	Soil	1	S-2 Metals (As, Ba, Pb, Zn, Hg) S-2 Metals (Cu, Ni, Mn, Ti, Se) S-24 TRH(C, Carb, TEX, PAH, Phenols) VOC Target Scan PCB PH (1:5) Exchangeable cations (ED07) PPOS/PFOA Asbestos (absence/present) Particle Sizing to 75um (Slave) Organic Matter Plus Total Organic Carbon (EPO4)	Comments on heavy contaminant levels, inclusions, or samples requiring specific GC analysis etc.
2	LJ-5802-3.0	" 0820				HOLD
3	LJ-5804-3.5	" 0850				
4	LJ-5803-3.0	" 1140				
5	LJ-5804-2.0	" 1255				
6	LJ-5806-1.5	" 1355				
7	LJ-mw02-1.0	" 1500				HOLD
8	LJ-mw02-2.0	" 1540				
9	LJ-5807-0.5	" 1610				
10	DOL041213-SP	" -				
*	TOL041213-SP	" -				



Telephone : +61-2-8784 8585

Environmental Division
 Sydney
 Work Order
ES1326976

Please Forward to EnviroLab



Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; QRC = Nitric Preserved Plastic; SR = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airtight Unpreserved Plastic; V = VOA Vial (Nitric Preserved); VQ = VOA Vial (Nitric Preserved); VS = VOA Vial (Sulfuric Preserved); AV = Airtight Unpreserved Vial; SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Plastic; ASS = Plastic Bin for Acid Sulphate Salts; U = Unpreserved Tins
 2 - Top Right Preserved Bottle; E = EDTA Preserved Bottles; ET = Stone Bottles

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1326976

<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 : 0224189</p> <p>C-O-C number : ----</p> <p>Site : LIDDELL</p> <p>Sampler : SP</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 : 16-DEC-2013</p>	<p>Issue Date : 11-DEC-2013 10:40</p> <p>Scheduled Reporting Date : 16-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 : 3.9°C SYD - Ice present</p> <p>No. of samples received : 10</p> <p>No. of samples analysed : 8</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.
- Sample T0I_041213_SP to be forwarded to Envirolab.
- **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	(On Hold) SOIL	No analysis requested	SOIL - EP066 (solids)	Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids)	Volatile Organic Compounds	SOIL - S-27	TRH/BTEX/PAH/Phenols/8Metals
ES1326976-001	04-DEC-2013 08:10	LJ_SB02_2.0			✓		✓			✓
ES1326976-002	04-DEC-2013 08:20	LJ_SB02_3.0	✓							
ES1326976-003	04-DEC-2013 08:50	LJ_MW04_3.5			✓		✓			✓
ES1326976-004	04-DEC-2013 11:40	LJ_SB03_3.0			✓		✓			✓
ES1326976-005	04-DEC-2013 12:55	LJ_SB04_2.0			✓		✓			✓
ES1326976-006	04-DEC-2013 13:55	LJ_SB06_1.5			✓		✓			✓
ES1326976-007	04-DEC-2013 15:00	LJ_MW02_1.0	✓							
ES1326976-008	04-DEC-2013 15:40	LJ_MW02_3.0			✓		✓			✓
ES1326976-009	04-DEC-2013 16:10	LJ_SB07_0.8			✓		✓			✓
ES1326976-010	04-DEC-2013 15:00	D01_041213_SP			✓		✓			✓

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

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 : ES1326976 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 : 0224189 C-O-C number : ---- Sampler : SP Site : 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 : 10-DEC-2013 Issue Date : 16-DEC-2013 No. of samples received : 10 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
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

				LJ_SB02_2.0	LJ_MW04_3.5	LJ_SB03_3.0	LJ_SB04_2.0	LJ_SB06_1.5
				04-DEC-2013 08:10	04-DEC-2013 08:50	04-DEC-2013 11:40	04-DEC-2013 12:55	04-DEC-2013 13:55
Compound	CAS Number	LOR	Unit	ES1326976-001	ES1326976-003	ES1326976-004	ES1326976-005	ES1326976-006
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	22.4	12.0	15.7	24.0	16.1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	6	8	11	14	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	15	15	19	14	16
Copper	7440-50-8	5	mg/kg	20	27	30	22	32
Lead	7439-92-1	5	mg/kg	15	11	10	11	16
Nickel	7440-02-0	2	mg/kg	8	13	16	13	30
Zinc	7440-66-6	5	mg/kg	42	47	75	63	119
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

				LJ_SB02_2.0	LJ_MW04_3.5	LJ_SB03_3.0	LJ_SB04_2.0	LJ_SB06_1.5
				04-DEC-2013 08:10	04-DEC-2013 08:50	04-DEC-2013 11:40	04-DEC-2013 12:55	04-DEC-2013 13:55
Compound	CAS Number	LOR	Unit	ES1326976-001	ES1326976-003	ES1326976-004	ES1326976-005	ES1326976-006
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

Client sampling date / time

				LJ_SB02_2.0	LJ_MW04_3.5	LJ_SB03_3.0	LJ_SB04_2.0	LJ_SB06_1.5
				04-DEC-2013 08:10	04-DEC-2013 08:50	04-DEC-2013 11:40	04-DEC-2013 12:55	04-DEC-2013 13:55
Compound	CAS Number	LOR	Unit	ES1326976-001	ES1326976-003	ES1326976-004	ES1326976-005	ES1326976-006
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

				LJ_SB02_2.0	LJ_MW04_3.5	LJ_SB03_3.0	LJ_SB04_2.0	LJ_SB06_1.5
				04-DEC-2013 08:10	04-DEC-2013 08:50	04-DEC-2013 11:40	04-DEC-2013 12:55	04-DEC-2013 13:55
Compound	CAS Number	LOR	Unit	ES1326976-001	ES1326976-003	ES1326976-004	ES1326976-005	ES1326976-006
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Phenanthrene	85-01-8	0.5	mg/kg	2.4	<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	2.4	<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	1010	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	2600	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	3610	<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	2190	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	1440	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	3630	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	2190	<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

				LJ_SB02_2.0	LJ_MW04_3.5	LJ_SB03_3.0	LJ_SB04_2.0	LJ_SB06_1.5
				04-DEC-2013 08:10	04-DEC-2013 08:50	04-DEC-2013 11:40	04-DEC-2013 12:55	04-DEC-2013 13:55
Compound	CAS Number	LOR	Unit	ES1326976-001	ES1326976-003	ES1326976-004	ES1326976-005	ES1326976-006
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	%	92.1	90.4	88.2	86.2	92.5
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	85.0	78.0	82.2	79.1	77.6
Toluene-D8	2037-26-5	0.1	%	89.4	87.5	83.4	83.8	84.0
4-Bromofluorobenzene	460-00-4	0.1	%	87.5	85.2	100	99.4	99.7
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	105	111	111	112	108
2-Chlorophenol-D4	93951-73-6	0.1	%	109	116	110	108	111
2,4,6-Tribromophenol	118-79-6	0.1	%	64.6	65.6	66.4	64.5	57.2
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	105	106	105	105	103
Anthracene-d10	1719-06-8	0.1	%	89.2	94.0	92.1	94.2	93.0
4-Terphenyl-d14	1718-51-0	0.1	%	80.3	82.4	81.8	81.5	78.8
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	99.2	90.4	102	98.7	96.8
Toluene-D8	2037-26-5	0.1	%	86.6	84.4	95.6	95.9	96.4
4-Bromofluorobenzene	460-00-4	0.1	%	92.8	90.0	102	100	102



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				LJ_MW02_3.0	LJ_SB07_0.8	D01_041213_SP	---	---
				04-DEC-2013 15:40	04-DEC-2013 16:10	04-DEC-2013 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1326976-008	ES1326976-009	ES1326976-010	---	---
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	---	1.0	%	27.8	11.3	16.5	---	---
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	12	20	21	---	---
Cadmium	7440-43-9	1	mg/kg	<1	1	<1	---	---
Chromium	7440-47-3	2	mg/kg	15	16	18	---	---
Copper	7440-50-8	5	mg/kg	23	29	31	---	---
Lead	7439-92-1	5	mg/kg	14	18	13	---	---
Nickel	7440-02-0	2	mg/kg	27	34	18	---	---
Zinc	7440-66-6	5	mg/kg	115	86	135	---	---
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	---	---
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	<0.1	---	---
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	<5	---	---
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	---	---
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	<5	---	---
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	<5	---	---
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	<0.5	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LJ_MW02_3.0	LJ_SB07_0.8	D01_041213_SP	---	---
				04-DEC-2013 15:40	04-DEC-2013 16:10	04-DEC-2013 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1326976-008	ES1326976-009	ES1326976-010	---	---
EP074D: Fumigants - Continued								
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	<5	---	---
Chloromethane	74-87-3	5	mg/kg	<5	<5	<5	---	---
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	<5	---	---
Bromomethane	74-83-9	5	mg/kg	<5	<5	<5	---	---
Chloroethane	75-00-3	5	mg/kg	<5	<5	<5	---	---
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	<5	---	---
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<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	---	---
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				LJ_MW02_3.0	LJ_SB07_0.8	D01_041213_SP	----	----
				04-DEC-2013 15:40	04-DEC-2013 16:10	04-DEC-2013 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1326976-008	ES1326976-009	ES1326976-010	----	----
EP074F: Halogenated Aromatic Compounds - Continued								
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	5	mg/kg	<5	<5	<5	----	----
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

				LJ_MW02_3.0	LJ_SB07_0.8	D01_041213_SP	---	---
				04-DEC-2013 15:40	04-DEC-2013 16:10	04-DEC-2013 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1326976-008	ES1326976-009	ES1326976-010	---	---
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	<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	100	<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	60	<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	60	<50	<50	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	60	<50	<50	---	---
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				LJ_MW02_3.0	LJ_SB07_0.8	D01_041213_SP	----	----
				04-DEC-2013 15:40	04-DEC-2013 16:10	04-DEC-2013 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1326976-008	ES1326976-009	ES1326976-010	----	----
EP080: BTEXN - Continued								
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	----	----
^ 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	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	86.3	80.5	90.7	----	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	77.1	76.6	77.0	----	----
Toluene-D8	2037-26-5	0.1	%	81.7	84.2	78.6	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	94.3	97.6	86.1	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	106	108	102	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	110	109	109	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	62.4	64.7	58.3	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	100	104	102	----	----
Anthracene-d10	1719-06-8	0.1	%	88.2	91.4	91.3	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	78.6	80.2	78.2	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	96.4	94.6	95.6	----	----
Toluene-D8	2037-26-5	0.1	%	93.8	97.8	87.4	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	99.9	99.4	85.8	----	----



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	: ES1326976	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	: LIDDELL	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: SP	No. of samples received	: 10
Order number	: 0224189	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
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: **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	LJ_SB04_2.0	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	24.0	23.9	0.5	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 3210645)									
ES1326930-010	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	15	13	18.4	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	6	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	11	12	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	18	20	9.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	26	23	14.2	No Limit
ES1326975-014	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	27	27	0.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	16	16	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	14	12	16.2	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	41	39	4.3	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	35	22	44.9	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	75	76	0.0	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 3214171)									
ES1326976-009	LJ_SB07_0.8	EG005T: Cadmium	7440-43-9	1	mg/kg	1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	16	16	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	34	26	26.0	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	20	19	6.4	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	29	28	3.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	18	17	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	86	69	21.9	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3210646)									
ES1326930-010	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1326975-014	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: 3214172)									
ES1326976-009	LJ_SB07_0.8	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	LJ_SB02_2.0	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



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: 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
ES1326976-001	LJ_SB02_2.0	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	LJ_SB02_2.0	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	LJ_SB02_2.0	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	LJ_SB02_2.0	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



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)									
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
		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	LJ_SB02_2.0	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



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	LJ_SB02_2.0	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: 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	LJ_SB02_2.0	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



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 (%)
EP074G: Trihalomethanes (QC Lot: 3207925) - continued									
ES1326976-001	LJ_SB02_2.0	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	LJ_SB02_2.0	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3206091)									
ES1326975-001	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
ES1326975-013	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: 3206091)									
ES1326975-001	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



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: 3206091) - continued									
ES1326975-001	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
ES1326975-013	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: 3206090)									
ES1326975-001	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
ES1326975-013	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: 3207924)									
ES1326975-002	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: 3207924) - continued									
ES1326976-001	LJ_SB02_2.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3206090)									
ES1326975-001	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
ES1326975-013	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: 3207924)									
ES1326975-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1326976-001	LJ_SB02_2.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	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	108-38-3 106-42-3	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
ES1326976-001	LJ_SB02_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	108-38-3 106-42-3	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: 3210645)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	118	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	109	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	114	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	107	81	133	
EG005T: Total Metals by ICP-AES (QCLot: 3214171)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	121	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	121	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	108	71	133	
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	116	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	119	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	128	81	133	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3210646)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	70.1	66	112	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3214172)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	106	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	----	----	----	----	



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: 3207925) - continued								
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
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



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: 3207925) - continued									
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	
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: 3206091)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	108	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	108	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	107	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	84.2	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	108	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	100	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	93.6	76.4	114	



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: 3206091) - continued									
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	79.0	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	98.3	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	30.2	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3206091)									
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	115	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	116	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	115	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	106	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	108	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	106	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	108	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	90.9	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	93.9	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	113	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	106	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	110	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	95.0	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3206090)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	98.0	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	98.9	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	86.3	64	128	
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 Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3206090)									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	98.5	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	94.2	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	77.8	63	131	
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: 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	



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: 3207924) - continued								
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	89.0	60	120
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

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: 3210645)							
ES1326930-010	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	112	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	109	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	112	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	108	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	110	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	107	70	130
EG005T: Total Metals by ICP-AES (QCLot: 3214171)							
ES1326976-009	LJ_SB07_0.8	EG005T: Arsenic	7440-38-2	50 mg/kg	119	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	116	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	111	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	108	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	119	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	105	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	107	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3210646)							
ES1326930-010	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	85.2	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3214172)							
ES1326976-009	LJ_SB07_0.8	EG035T: Mercury	7439-97-6	5 mg/kg	109	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



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	
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: 3206091)								
ES1326975-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	117	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	102	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	61.2	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	92.8	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	47.6	20	130	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3206091)								
ES1326975-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	111	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	117	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3206090)								
ES1326975-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	82.4	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	82.5	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	70.6	52	132	
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: 3206090)								
ES1326975-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	104	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.2	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	54.6	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: 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		

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 (%)



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: 3206090)											
ES1326975-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	82.4	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	82.5	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	70.6	----	52	132	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3206090)											
ES1326975-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	104	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.2	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	54.6	----	52	132	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3206091)											
ES1326975-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	117	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	102	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	61.2	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	92.8	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	47.6	----	20	130	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3206091)											
ES1326975-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	111	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	117	----	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 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	----	----	
	91-20-3	EP080: Naphthalene		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	----	----	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3208625)											
ES1326974-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	107	----	70	130	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3210645)											
ES1326930-010	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	112	----	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: 3210645) - continued										
ES1326930-010	Anonymous	EG005T: Cadmium	7440-43-9	50 mg/kg	107	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	109	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	112	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	108	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	110	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	107	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3210646)										
ES1326930-010	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	85.2	----	70	130	----	----
EG005T: Total Metals by ICP-AES (QCLot: 3214171)										
ES1326976-009	LJ_SB07_0.8	EG005T: Arsenic	7440-38-2	50 mg/kg	119	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	116	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	111	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	108	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	119	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	105	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	107	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3214172)										
ES1326976-009	LJ_SB07_0.8	EG035T: Mercury	7439-97-6	5 mg/kg	109	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326976	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
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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	: LIDDELL	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: SP	No. of samples received	: 10
Order number	: 0224189	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) LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8,	LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	04-DEC-2013	----	----	----	12-DEC-2013	18-DEC-2013	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T) LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, D01_041213_SP	LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0,	04-DEC-2013	13-DEC-2013	02-JUN-2014	✓	13-DEC-2013	02-JUN-2014	✓
Soil Glass Jar - Unpreserved (EG005T) LJ_SB07_0.8		04-DEC-2013	16-DEC-2013	02-JUN-2014	✓	16-DEC-2013	02-JUN-2014	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T) LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, D01_041213_SP	LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0,	04-DEC-2013	13-DEC-2013	01-JAN-2014	✓	16-DEC-2013	01-JAN-2014	✓
Soil Glass Jar - Unpreserved (EG035T) LJ_SB07_0.8		04-DEC-2013	16-DEC-2013	01-JAN-2014	✓	16-DEC-2013	01-JAN-2014	✓
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066) LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8,	LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	04-DEC-2013	12-DEC-2013	18-DEC-2013	✓	13-DEC-2013	21-JAN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Soil Glass Jar - Unpreserved (EP071) LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8,	LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	04-DEC-2013	13-DEC-2013	18-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) LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8, LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	04-DEC-2013	12-DEC-2013	11-DEC-2013	*	13-DEC-2013	11-DEC-2013	*	
EP074E: Halogenated Aliphatic Compounds								
Soil Glass Jar - Unpreserved (EP074) LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8, LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	04-DEC-2013	12-DEC-2013	11-DEC-2013	*	13-DEC-2013	11-DEC-2013	*	
EP074F: Halogenated Aromatic Compounds								
Soil Glass Jar - Unpreserved (EP074) LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8, LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	04-DEC-2013	12-DEC-2013	11-DEC-2013	*	13-DEC-2013	11-DEC-2013	*	
EP074A: Monocyclic Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP074) LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8, LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	04-DEC-2013	12-DEC-2013	11-DEC-2013	*	13-DEC-2013	11-DEC-2013	*	
EP074H: Naphthalene								
Soil Glass Jar - Unpreserved (EP074) LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8, LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	04-DEC-2013	12-DEC-2013	11-DEC-2013	*	13-DEC-2013	11-DEC-2013	*	
EP074B: Oxygenated Compounds								
Soil Glass Jar - Unpreserved (EP074) LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8, LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	04-DEC-2013	12-DEC-2013	11-DEC-2013	*	13-DEC-2013	11-DEC-2013	*	
EP074C: Sulfonated Compounds								
Soil Glass Jar - Unpreserved (EP074) LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8, LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	04-DEC-2013	12-DEC-2013	11-DEC-2013	*	13-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	
EP074G: Trihalomethanes								
Soil Glass Jar - Unpreserved (EP074) LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8, LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	04-DEC-2013	12-DEC-2013	11-DEC-2013	✖	13-DEC-2013	11-DEC-2013	✖	
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM)) LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8, LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	04-DEC-2013	13-DEC-2013	18-DEC-2013	✔	13-DEC-2013	22-JAN-2014	✔	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8, LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	04-DEC-2013	13-DEC-2013	18-DEC-2013	✔	13-DEC-2013	22-JAN-2014	✔	
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8, LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	04-DEC-2013	12-DEC-2013	18-DEC-2013	✔	13-DEC-2013	18-DEC-2013	✔	
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080) LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8, LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	04-DEC-2013	12-DEC-2013	18-DEC-2013	✔	13-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	18	11.1	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	3	19	15.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	3	19	15.8	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	20	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	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	2	19	10.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	19	10.5	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	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
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	2	19	10.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	19	10.5	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	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
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	2	19	10.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	19	10.5	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	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 - 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
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

- 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
EP074A: Monocyclic Aromatic Hydrocarbons						
Soil Glass Jar - Unpreserved LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8, LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	12-DEC-2013	11-DEC-2013	1	13-DEC-2013	11-DEC-2013	2
EP074B: Oxygenated Compounds						
Soil Glass Jar - Unpreserved LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8, LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	12-DEC-2013	11-DEC-2013	1	13-DEC-2013	11-DEC-2013	2
EP074C: Sulfonated Compounds						
Soil Glass Jar - Unpreserved LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8, LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	12-DEC-2013	11-DEC-2013	1	13-DEC-2013	11-DEC-2013	2
EP074D: Fumigants						



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 - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8, LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	12-DEC-2013	11-DEC-2013	1	13-DEC-2013	11-DEC-2013	2
EP074E: Halogenated Aliphatic Compounds						
Soil Glass Jar - Unpreserved LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8, LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	12-DEC-2013	11-DEC-2013	1	13-DEC-2013	11-DEC-2013	2
EP074F: Halogenated Aromatic Compounds						
Soil Glass Jar - Unpreserved LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8, LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	12-DEC-2013	11-DEC-2013	1	13-DEC-2013	11-DEC-2013	2
EP074G: Trihalomethanes						
Soil Glass Jar - Unpreserved LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8, LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	12-DEC-2013	11-DEC-2013	1	13-DEC-2013	11-DEC-2013	2
EP074H: Naphthalene						
Soil Glass Jar - Unpreserved LJ_SB02_2.0, LJ_SB03_3.0, LJ_SB06_1.5, LJ_SB07_0.8, LJ_MW04_3.5, LJ_SB04_2.0, LJ_MW02_3.0, D01_041213_SP	12-DEC-2013	11-DEC-2013	1	13-DEC-2013	11-DEC-2013	2

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.

ALS
CHAIN OF CUSTODY
 ALS Laboratory
 Please tick ✓

ALS is a registered provider of environmental testing services. We are ISO 9001:2015 certified. Our services are provided in accordance with the requirements of the relevant standards. We are also a member of the International Federation of Environmental Engineers (IFEE).
 For more information, please visit our website at www.als.com.au or contact us on 1300 300 300.

CLIENT: ERN
OFFICE: Sydney
PROJECT: Sydney
ORDER NUMBER: 0224198
PROJECT MANAGER: Joe Ferrary
SAMPLER: Greg Dickman
CONTACT PH: 0424 978268
SAMPLER MOBILE: 0424 82694
ALS QUOTE NO.: SY794/13
SITE: BAYSWATER (LIDDELL)
RECEIVED BY: Greg Dickman
DATE/TIME: 03.12.13 17:00
RELINQUISHED BY: Greg Dickman
DATE/TIME: 03.12.13 17:00
RECEIVED BY: Greg Dickman
DATE/TIME: 10/12/13 15:30
RELINQUISHED BY: Greg Dickman
DATE/TIME: 10/12/13 17:00

FOR LABORATORY USE ONLY (Circle)

Custody seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt 17.0

Other comments: ANALYST

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

ANALYSIS REQUIRED INCLUDING SUITES (Nil. Some Codes must be listed to attract suite price) Where Metals are required, specify Total (initials bolded) or Dissolved (field filled) (initials required).

LAB ID	SAMPLE ID	MATRIX	DATE / TIME	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS	ANALYSIS REQUIRED INCLUDING SUITES (Nil. Some Codes must be listed to attract suite price) Where Metals are required, specify Total (initials bolded) or Dissolved (field filled) (initials required).	ADDITIONAL INFORMATION
1	LU-SB02-0.5	SOIL			1 Heavy	S-2 Metals (As, Ba, Pb, Zn, Hg) S-22 TRHCS C40YBTEXN, PAH, Phenols VOC Target Scan PCBs pH (1:5) Exchangeable Cations (ED07) PFOS/PFOA Asbestos (absence/presence) Particulate Matter to 75um (slv) Organic Matter Plus Carbon (EP04)	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

Environmental Division
 Sydney
 Work Order
ES1326998

Telephone : +61-2-8784 8555

Water Contaminants: C = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved Plastic; SH = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved; AS = Amber Glass Unpreserved Plastic; AU = Autoclave Unpreserved Plastic
 M = VOA Vol HCl Preserved; VO = VOA Vol Sodium Bicarbonate Preserved; US = VOA Vol Sulfuric Preserved; AV = Airflight Unpreserved Vol; SC = Sulfuric Preserved; Ambient Glass; H = HCl Preserved; Operation bottle; SP = Sulfuric Preserved Plastic; F = Formoldehyde Preserved Glass
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASB = Plastic Bin for Acid Contaminants; U = Unpreserved Bin

SAMPLE RECEIPT NOTIFICATION (SRN)**Comprehensive Report**

Work Order : **ES1326998**

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 : 0224198

C-O-C number : ---- **Quote number** : ES2013ENVRES0369 (SY/794/13)

Site : ----

Sampler : RO **QC Level** : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 10-DEC-2013 **Issue Date** : 10-DEC-2013 20:44
Client Requested Due Date : 18-DEC-2013 **Scheduled Reporting Date** : **18-DEC-2013**

Delivery Details

Mode of Delivery : Carrier **Temperature** : 4.9°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
- **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/PAH/Phenols/8Metals
ES1326998-001	[10-DEC-2013]	LU_SB02_0.5	✓

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 : ES1326998 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 : RO 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 : 10-DEC-2013 Issue Date : 17-DEC-2013 No. of samples received : 1 No. of samples analysed : 1
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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 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

LU_SB02_0.5

Client sampling date / time

[10-DEC-2013]

Compound	CAS Number	LOR	Unit	ES1326998-001	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

EA055: Moisture Content

Moisture Content (dried @ 103°C)	---	1.0	%	9.2	---	---	---	---
----------------------------------	-----	-----	---	-----	-----	-----	-----	-----

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	9	---	---	---	---
Copper	7440-50-8	5	mg/kg	6	---	---	---	---
Lead	7439-92-1	5	mg/kg	18	---	---	---	---
Nickel	7440-02-0	2	mg/kg	10	---	---	---	---
Zinc	7440-66-6	5	mg/kg	65	---	---	---	---

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

LU_SB02_0.5

Client sampling date / time

[10-DEC-2013]

ES1326998-001

Compound	CAS Number	LOR	Unit					
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	---	---	---	---
^ 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	---	---	---	---
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	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	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	---	---	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

LU_SB02_0.5

Client sampling date / time

[10-DEC-2013]

Compound	CAS Number	LOR	Unit	ES1326998-001	----	----	----	----
EP080: BTEXN - Continued								
^ 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	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	103	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	105	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	63.3	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	102	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	89.4	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	76.9	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	91.7	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	96.7	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	107	----	----	----	----



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	: ES1326998	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	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 17-DEC-2013
Sampler	: RO	No. of samples received	: 1
Order number	: 0224198	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 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: 3206488)									
ES1326998-001	LU_SB02_0.5	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	9.2	8.8	4.8	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 3214773)									
ES1326939-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	5	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	8	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	11	11	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	15	17	9.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	34	28	20.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	29	31	7.4	No Limit
ES1327063-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	12	11	11.5	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	4	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	7	6	23.4	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	12	10	14.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	76	62	21.2	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3214774)									
ES1326939-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.1	0.0	No Limit
ES1327063-001	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: 3208644)									
ES1326954-001	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
		ES1326974-007	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



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: 3208644) - continued									
ES1326974-007	Anonymous	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: 3208644)									
ES1326954-001	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
ES1326974-007	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



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: 3208644) - continued									
ES1326974-007	Anonymous	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: 3205555)									
ES1326935-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1326935-009	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3208643)									
ES1326954-001	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
ES1326974-007	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: 3205555)									
ES1326935-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1326935-009	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: 3208643)									
ES1326954-001	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
ES1326974-007	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: 3205555)									
ES1326935-001	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
ES1326935-009	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 : ES1326998
 Client : ENVIRO RESOURCES MANAGEMENT
 Project : Project Symphony



Sub-Matrix: SOIL				<i>Laboratory Duplicate (DUP) Report</i>					
<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: 3205555) - continued									
ES1326935-009	Anonymous	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: 3214773)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	114	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	109	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	108	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	112	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	109	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	117	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: 3214774)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	85.1	66	112	
EP075(SIM)A: Phenolic Compounds (QCLot: 3208644)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	108	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	110	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	81.0	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	90.6	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	86.5	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	85.1	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	85.7	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	27.0	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3208644)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	93.4	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	114	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	115	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	98.7	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	99.4	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	96.4	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	98.6	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	96.1	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	105	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	95.5	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: 3208644) - continued									
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	104	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	88.7	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	92.1	71	113	
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	96.2	71.7	113	
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	83.4	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205555)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	86.2	68.4	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3208643)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	108	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	124	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	103	64	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205555)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	88.9	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208643)									
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	128	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	106	63	131	
EP080: BTEXN (QCLot: 3205555)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	82.8	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	89.0	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	88.1	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	87.4	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	90.8	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	89.0	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	
EG005T: Total Metals by ICP-AES (QCLot: 3214773)								
ES1326939-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	108	70	130	
		EG005T: Cadmium	7440-43-9	50 mg/kg	109	70	130	
		EG005T: Chromium	7440-47-3	50 mg/kg	111	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	
EG005T: Total Metals by ICP-AES (QCLot: 3214773) - continued								
ES1326939-001	Anonymous	EG005T: Copper	7440-50-8	125 mg/kg	109	70	130	
		EG005T: Lead	7439-92-1	125 mg/kg	104	70	130	
		EG005T: Nickel	7440-02-0	50 mg/kg	110	70	130	
		EG005T: Zinc	7440-66-6	125 mg/kg	108	70	130	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3214774)								
ES1326939-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	85.6	70	130	
EP075(SIM)A: Phenolic Compounds (QCLot: 3208644)								
ES1326954-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	97.9	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	106	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	66.2	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	76.7	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	38.5	20	130	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3208644)								
ES1326954-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	106	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	115	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3205555)								
ES1326935-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	91.3	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3208643)								
ES1326954-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	87.0	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	86.9	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	75.8	52	132	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205555)								
ES1326935-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	92.3	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208643)								
ES1326954-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	110	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	79.8	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	58.2	52	132	
EP080: BTEXN (QCLot: 3205555)								
ES1326935-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	77.6	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	82.2	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	84.2	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	86.0	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	76.3	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: 3205555)											
ES1326935-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	91.3	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3205555)											
ES1326935-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	92.3	----	70	130	----	----	
EP080: BTEXN (QCLot: 3205555)											
ES1326935-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	77.6	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	82.2	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	84.2	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	86.0	----	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	76.3	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3208643)											
ES1326954-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	87.0	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	86.9	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	75.8	----	52	132	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208643)											
ES1326954-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	110	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	79.8	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	58.2	----	52	132	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3208644)											
ES1326954-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	97.9	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	106	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	66.2	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	76.7	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	38.5	----	20	130	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3208644)											
ES1326954-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	106	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	115	----	70	130	----	----	
EG005T: Total Metals by ICP-AES (QCLot: 3214773)											
ES1326939-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	108	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	109	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	111	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	109	----	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: 3214773) - continued										
ES1326939-001	Anonymous	EG005T: Lead	7439-92-1	125 mg/kg	104	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	110	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	108	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3214774)										
ES1326939-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	85.6	----	70	130	----	----



INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326998	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	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 17-DEC-2013
Sampler	: RO	No. of samples received	: 1
Order number	: 0224198	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) LU_SB02_0.5	10-DEC-2013	----	----	----	11-DEC-2013	24-DEC-2013	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) LU_SB02_0.5	10-DEC-2013	16-DEC-2013	08-JUN-2014	✓	17-DEC-2013	08-JUN-2014	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) LU_SB02_0.5	10-DEC-2013	16-DEC-2013	07-JAN-2014	✓	17-DEC-2013	07-JAN-2014	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) LU_SB02_0.5	10-DEC-2013	13-DEC-2013	24-DEC-2013	✓	14-DEC-2013	22-JAN-2014	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) LU_SB02_0.5	10-DEC-2013	13-DEC-2013	24-DEC-2013	✓	14-DEC-2013	22-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) LU_SB02_0.5	10-DEC-2013	13-DEC-2013	24-DEC-2013	✓	14-DEC-2013	22-JAN-2014	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) LU_SB02_0.5	10-DEC-2013	11-DEC-2013	24-DEC-2013	✓	15-DEC-2013	24-DEC-2013	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) LU_SB02_0.5	10-DEC-2013	11-DEC-2013	24-DEC-2013	✓	15-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	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	1	13	7.7	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	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	19	10.5	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 (SIM)	EP075(SIM)	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	19	5.3	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
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	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	19	5.3	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
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	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	19	5.3	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
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.

Matrix: **SOIL**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Method					
Laboratory Duplicates (DUP)					
Moisture Content	1	13	7.7	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



CHAIN OF CUSTODY

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 Fax: 949.251.2301
 Email: als@alslab.com

CLIENT: *ERM*

OFFICE: *Sycamore*

PROJECT: *Project Symphony*

ORDER NUMBER: *0224198*

PROJECT MANAGER: *Joe Perry*

SAMPLER: *JOHN GAVIN*

CDC emailed to ALS? (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:

To be batched with other Liddell samples arriving today.

TURNAROUND REQUIREMENTS:
 Standard TAT (List due date)
 Non-Standard or urgent TAT (List due date)

ALS QUOTE NO.: SY178413

SITE: ~~LIDDELL~~

CONTACT PH:

SAMPLER MOBILE: *042740462*

EDD FORMAT (or default):

FOR LABORATORY USE ONLY (Circle)
 Caddy: No N/A
 Freezer: No N/A
 Random Sample Temperature on Receipt: *4.9* °C

RELINQUISHED BY: *Joe Perry*
DATE/TIME: *10/12/15 13:00*

RECEIVED BY: *Joey W. W.*
DATE/TIME: *10/12/15 19:20*

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	TOTAL CONTAINERS	ANALYSIS REQUIRED (including SULFIDES AND some Codes must be listed to extract suble price) (Where Matrix is required, specify Total (unfiltered leachate required) or Dissolved (field filtered leachate required))	Additional Information
1	LL-5809-18-1-9	02/12/13	SOIL	1, 5, 6, 7	1	S-2 Metals (As, Ba, Cd, Cr, Cu, Ni, Pb, Zn, Hg) S-7 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, Bi, Mo, Ti, Se) S-24 TRHCB C40/BTEXN, PAH, Phenols VOC Target Scan PCB pH (1:5) Exchangeable cations (ED07) PFOS/PFOA Asbestos (absence/presence) Particle Sizing to Tymin (Sieve) Organic Matter plus Carbon (EPO4)	Comments on likely contaminant levels, incidents, or samples including specific CO analysis etc. Environmental Division Sydney Work Order ES1327002 Telephone : + 61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; S1 = Sodium Hydroxide Preserved Plastic; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved Plastic; A2 = Amber Glass Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VA = VOA Vial Sulfuric Preserved; AV = Airfilled Unpreserved Vial SG = Sulfuric Preserved; Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Specimen Bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulfate Soils; B = Unpreserved Bag.

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: ES1327002		
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 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	: ----		
Sampler	: JG		

Dates

Date Samples Received	: 10-DEC-2013	Issue Date	: 10-DEC-2013 20:42
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	: 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
- **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 - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - S-27 TRH/BTEX/NP/AH/Phenols/8Metals
ES1327002-001	02-DEC-2013 15:00	LL_SB09_1.8-1.9	✓	✓

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 : ES1327002 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 : JG 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 : 10-DEC-2013 Issue Date : 16-DEC-2013 No. of samples received : 1 No. of samples analysed : 1
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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.

Signatories	Position	Accreditation Category
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

LL_SB09_1.8-1.9

Client sampling date / time

02-DEC-2013 15:00

Compound	CAS Number	LOR	Unit	ES1327002-001	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

EA055: Moisture Content

Moisture Content (dried @ 103°C)	---	1.0	%	21.2	---	---	---	---
----------------------------------	-----	-----	---	------	-----	-----	-----	-----

EG005T: Total Metals by ICP-AES

Arsenic	7440-38-2	5	mg/kg	13	---	---	---	---
Cadmium	7440-43-9	1	mg/kg	<1	---	---	---	---
Chromium	7440-47-3	2	mg/kg	17	---	---	---	---
Copper	7440-50-8	5	mg/kg	20	---	---	---	---
Lead	7439-92-1	5	mg/kg	19	---	---	---	---
Nickel	7440-02-0	2	mg/kg	14	---	---	---	---
Zinc	7440-66-6	5	mg/kg	89	---	---	---	---

EG035T: Total Recoverable Mercury by FIMS

Mercury	7439-97-6	0.1	mg/kg	<0.1	---	---	---	---
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EP066: Polychlorinated Biphenyls (PCB)

Total Polychlorinated biphenyls	---	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	---	---	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

LL_SB09_1.8-1.9

Client sampling date / time

02-DEC-2013 15:00

ES1327002-001

Compound	CAS Number	LOR	Unit					
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	---	---	---	---
^ 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	---	---	---	---
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	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	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	---	---	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

LL_SB09_1.8-1.9

Client sampling date / time

02-DEC-2013 15:00

Compound	CAS Number	LOR	Unit	ES1327002-001	----	----	----	----
EP080: BTEXN - Continued								
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	----	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	61.6	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	80.4	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	95.9	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	80.2	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	110	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	88.5	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	96.6	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	122	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	82.2	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	76.2	----	----	----	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
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	: ES1327002	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	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: JG	No. of samples received	: 1
Order number	: 0224198	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

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
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
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



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									
ES1326825-001	Anonymous	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
		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



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): 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	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: 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	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
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	108-38-3 106-42-3	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: 3205557) - continued									
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



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	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3205666)									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	89.0	57.4	117	
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	



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): 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	
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	



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: 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: 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
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



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
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

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: 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	----	----	



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
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	----	----
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: 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	: ES1327002	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	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: JG	No. of samples received	: 1
Order number	: 0224198	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) LL_SB09_1.8-1.9	02-DEC-2013	----	----	----	11-DEC-2013	16-DEC-2013	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) LL_SB09_1.8-1.9	02-DEC-2013	12-DEC-2013	31-MAY-2014	✓	12-DEC-2013	31-MAY-2014	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) LL_SB09_1.8-1.9	02-DEC-2013	12-DEC-2013	30-DEC-2013	✓	13-DEC-2013	30-DEC-2013	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) LL_SB09_1.8-1.9	02-DEC-2013	11-DEC-2013	16-DEC-2013	✓	12-DEC-2013	20-JAN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Soil Glass Jar - Unpreserved (EP071) LL_SB09_1.8-1.9	02-DEC-2013	11-DEC-2013	16-DEC-2013	✓	12-DEC-2013	20-JAN-2014	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) LL_SB09_1.8-1.9	02-DEC-2013	11-DEC-2013	16-DEC-2013	✓	12-DEC-2013	20-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) LL_SB09_1.8-1.9	02-DEC-2013	11-DEC-2013	16-DEC-2013	✓	12-DEC-2013	20-JAN-2014	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) LL_SB09_1.8-1.9	02-DEC-2013	11-DEC-2013	16-DEC-2013	✓	11-DEC-2013	16-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Soil Glass Jar - Unpreserved (EP080) LL_SB09_1.8-1.9	02-DEC-2013	11-DEC-2013	16-DEC-2013	✓	11-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)							
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	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
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	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
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
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	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)
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)
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
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.

CHAIN OF CUSTODY
ENVIRONMENTAL ALS Laboratory please tick →

LABORATORY USE ONLY (Circled)

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

CLIENT: CHAIN OF CUSTODY
OFFICE: D224198
PROJECT: D224198
ORDER NUMBER: D224198
PROJECT MANAGER:
SAMPLER:
COC emailed to ALS? (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:

TURNAROUND REQUIREMENTS:
ALS QUOTE NO.:
CONTRACT PH:
SAMPLER MOBILE:
EDD FORMAT (or default):
RELINQUISHED BY:
DATE/TIME:
RECEIVED BY:
DATE/TIME:

COC SEQUENCE NUMBER (Circle)
 000: 1 2 3 4 5 6 7
 OR: 1 2 3 4 5 6 7
RECEIVED BY: Steven
DATE/TIME: 12/12/13 9:00
RELINQUISHED BY:
DATE/TIME:
RECEIVED BY:
DATE/TIME:

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (to codes below)	TOTAL CONTAINERS	ANALYSIS REQUIRED Including SUITES (NB. Suite Codes must be listed to attract suite price) Where Matrix is required, specify Total (unfilled bottle requires) or Observed (field filtered bottle required).	Additional Information
1	LO-SB03-0.5	3/2/13	S	1 JAR			
2	D01-31213-JK	3/2/13	S	1 JAR + 1 Bag			
TOTAL							

Environmental Division
 Sydney
 Work Order
ES1327178
 Telephone : + 61-2-6784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airflight Unpreserved Plastic
 V = VOA Val HCl Preserved; VB = VOA Val Sodium Bisphosphate Preserved; VS = VOA Val Sulfuric Preserved; AV = Airflight Unpreserved Val; SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Add Sulfuric Acids; B = Unpreserved Bag.

Loren Schiavon

From: Joshua Kowald <Joshua.Kowald@erm.com>
Sent: Wednesday, 11 December 2013 6:14 PM
To: Joseph Ferring
Cc: Loren Schiavon
Subject: RE: Extra Samples

Hello Loren

Please analyse all samples with the identifier LJ and LO and D01 for the following:

- S-2 Metals
- S-24, TRH C6 – C36, PAH, Phenols, BTEX
- VOC target scan
- PFOS PFOA
- EP004

Please analyse TS8 and TSC8 for the following:

- BTEX, C6 – C9

Thank you
Joshua KOWald

-----Original Message-----

From: Joseph Ferring
Sent: Wednesday, December 11, 2013 4:16 PM
To: Joshua Kowald
Cc: Loren Schiavon (loren.schiavon@alsglobal.com)
Subject: FW: Extra Samples

Hey Josh, could you please reply back to Loren tonight to sort these?

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

-----Original Message-----

From: Loren Schiavon [mailto:loren.schiavon@alsglobal.com]
Sent: Wednesday, December 11, 2013 3:40 PM
To: Joseph Ferring
Subject: Extra Samples

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : **ES1327178**

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 : 0224198 **Page** : 1 of 2

Order number : ----

C-O-C number : ---- **Quote number** : ES2013ENVRES0354 (EN/009/13)

Site : ----

Sampler : ---- **QC Level** : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 12-DEC-2013 **Issue Date** : 16-DEC-2013 16:48
Client Requested Due Date : 23-DEC-2013 **Scheduled Reporting Date** : **23-DEC-2013**

Delivery Details

Mode of Delivery : Carrier **Temperature** : 5.8°C - Ice present
No. of coolers/boxes : ---- **No. of samples received** : 2
Security Seal : Intact. **No. of samples analysed** : 2

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 - EP004 (Carbon) Total Organic Carbon (Calc.)	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP231 Perfluorocyc/ Acids and Sulfonates by LC/MS/MS	SOIL - S-27 TRH/TEXN/PAH/Phenols&Metals
ES1327178-001	03-DEC-2013 15:00	LO_SB03-0.5	✓	✓	✓	✓
ES1327178-002	03-DEC-2013 15:00	D01_31213_JK	✓	✓	✓	✓

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
EP074: Volatile Organic Compounds							
D01_31213_JK	Soil Glass Jar - Unpreserved	10-DEC-2013	----	12-DEC-2013	✗	----	----
LO_SB03-0.5	Soil Glass Jar - Unpreserved	10-DEC-2013	----	12-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

THE ACCOUNTS PAYABLE

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

Work Order	: ES1327178	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	: 0224198	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 12-DEC-2013
Sampler	: ----	Issue Date	: 23-DEC-2013
Site	: ----		
Quote number	: EN/009/13	No. of samples received	: 2
		No. of samples analysed	: 2

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 ES1327227 #009. Results have been confirmed by re-extraction and re-analysis.**
- **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.

<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
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				LO_SB03-0.5	D01_31213_JK	---	---	---
				03-DEC-2013 15:00	03-DEC-2013 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1327178-001	ES1327178-002	---	---	---
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	---	1.0	%	22.0	17.0	---	---	---
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	6	12	---	---	---
Cadmium	7440-43-9	1	mg/kg	<1	<1	---	---	---
Chromium	7440-47-3	2	mg/kg	16	13	---	---	---
Copper	7440-50-8	5	mg/kg	13	9	---	---	---
Lead	7439-92-1	5	mg/kg	19	15	---	---	---
Nickel	7440-02-0	2	mg/kg	2	2	---	---	---
Zinc	7440-66-6	5	mg/kg	16	22	---	---	---
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	---	---	---
EP004: Organic Matter								
Organic Matter	---	0.5	%	<0.5	0.6	---	---	---
Total Organic Carbon	---	0.5	%	<0.5	<0.5	---	---	---
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	---	---	---
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	---	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LO_SB03-0.5	D01_31213_JK	---	---	---
				03-DEC-2013 15:00	03-DEC-2013 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1327178-001	ES1327178-002	---	---	---
EP074D: Fumigants - Continued								
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	---	---	---
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	---	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				LO_SB03-0.5	D01_31213_JK	---	---	---
				03-DEC-2013 15:00	03-DEC-2013 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1327178-001	ES1327178-002	---	---	---
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								
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	---	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LO_SB03-0.5	D01_31213_JK	---	---	---
				03-DEC-2013 15:00	03-DEC-2013 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1327178-001	ES1327178-002	---	---	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	---	---	---
EP080: BTEXN								



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LO_SB03-0.5	D01_31213_JK	---	---	---
				03-DEC-2013 15:00	03-DEC-2013 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1327178-001	ES1327178-002	---	---	---
EP080: BTEXN - Continued								
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	<0.0005	---	---	---
PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	---	---	---
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	---	---	---
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	103	---	---	---
Toluene-D8	2037-26-5	0.1	%	98.9	101	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	95.6	93.9	---	---	---
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	103	110	---	---	---
2-Chlorophenol-D4	93951-73-6	0.1	%	107	106	---	---	---
2,4,6-Tribromophenol	118-79-6	0.1	%	90.1	84.0	---	---	---
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	99.6	96.6	---	---	---
Anthracene-d10	1719-06-8	0.1	%	85.5	81.9	---	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	79.1	76.2	---	---	---
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	94.1	91.6	---	---	---
Toluene-D8	2037-26-5	0.1	%	91.7	93.3	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	88.3	86.2	---	---	---



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

QUALITY CONTROL REPORT

Work Order	: ES1327178	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	: 0224198	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 12-DEC-2013
C-O-C number	: ----	Issue Date	: 23-DEC-2013
Sampler	: ----	No. of samples received	: 2
Order number	: ----	No. of samples analysed	: 2
Quote number	: EN/009/13		

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
Pabi Subba	Senior Organic 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 (%)
EA055: Moisture Content (QC Lot: 3216837)									
ES1326974-015	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	27.3	26.4	3.6	0% - 20%
ES1327313-005	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	14.0	15.2	7.8	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 3220311)									
ES1327178-001	LO_SB03-0.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	16	14	10.7	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	3	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	<5	20.5	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	13	11	14.1	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	19	18	7.5	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	16	16	0.0	No Limit
ES1327227-009	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	9	6	52.3	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	<2	56.3	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	<5	47.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	74	51	36.5	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	159	112	# 35.0	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3220312)									
ES1327178-001	LO_SB03-0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1327227-009	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP004: Organic Matter (QC Lot: 3217922)									
ES1327178-001	LO_SB03-0.5	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: 3217254)									
ES1327178-001	LO_SB03-0.5	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: 3217254)							
ES1327178-001	LO_SB03-0.5	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: 3217254) - continued									
ES1327178-001	LO_SB03-0.5	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: 3217254)									
ES1327178-001	LO_SB03-0.5	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3217254)									
ES1327178-001	LO_SB03-0.5	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: 3217254)									
ES1327178-001	LO_SB03-0.5	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: 3217254)									
ES1327178-001	LO_SB03-0.5	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: 3217254)									
ES1327178-001	LO_SB03-0.5	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: 3217254)									
ES1327178-001	LO_SB03-0.5	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3216007)									
ES1327527-001	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
		ES1327527-008	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: 3216007) - continued									
ES1327527-008	Anonymous	EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3216007)									
ES1327527-001	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		
ES1327527-008	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: 3216006)										
ES1327527-001	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	
ES1327527-008	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: 3217253)										
ES1327178-001	LO_SB03-0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3216006)										
ES1327527-001	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	
ES1327527-008	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: 3217253)										
ES1327178-001	LO_SB03-0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
EP080: BTEXN (QC Lot: 3217253)										
ES1327178-001	LO_SB03-0.5	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	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	
	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			
EP231: Perfluorinated Compounds (QC Lot: 3215778)										
ES1326974-013	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	
ES1327422-036	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	



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: 3220311)									
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	99.1	71	133	
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	104	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	109	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: 3220312)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	85.4	66	112	
EP004: Organic Matter (QCLot: 3217922)									
EP004: Organic Matter	----	0.5	%	<0.5	4.58 %	95.2	85	105	
EP004: Total Organic Carbon	----	0.5	%	<0.5	2.66 %	95.1	84	106	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3217254)									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	93.6	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	97.8	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	95.3	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	95.7	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	99.9	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	96.5	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	94.4	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	98.9	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	101	61	131	
EP074B: Oxygenated Compounds (QCLot: 3217254)									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	95.7	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	92.0	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	92.1	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	98.7	54	136	
		5	mg/kg	<5	----	----	----	----	
EP074C: Sulfonated Compounds (QCLot: 3217254)									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	102	54	126	
EP074D: Fumigants (QCLot: 3217254)									



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: 3217254) - continued									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	101	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	96.5	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	77.8	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	73.8	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	91.7	66	126	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3217254)									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	117	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	109	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	113	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	102	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	107	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	116	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	98.9	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	100	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	96.8	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	103	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	97.4	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	104	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	97.0	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	107	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	105	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	99.6	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	103	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	93.0	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	98.2	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	97.8	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	93.5	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	92.1	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	91.0	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	95.2	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	100	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	93.5	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	90.7	53	129	



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: 3217254) - continued									
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	106	48	136	
EP074F: Halogenated Aromatic Compounds (QCLot: 3217254)									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	97.0	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	92.8	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	97.5	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	98.7	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	99.8	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	96.6	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	98.1	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	97.5	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	100	60	132	
EP074G: Trihalomethanes (QCLot: 3217254)									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	105	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	103	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	98.6	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	104	60	126	
EP074H: Naphthalene (QCLot: 3217254)									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	100	63	133	
		5	mg/kg	<5	----	----	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3216007)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	108	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	104	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	107	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	83.0	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	105	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	99.1	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	96.9	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	92.7	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	92.2	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	31.3	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3216007)									
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	107	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	112	77	123	
EP075(SIM): Phenanthrene	85-01-8	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	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3216007) - continued									
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	103	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	106	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	115	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	104	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	106	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	114	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	# 114	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	102	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3216006)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	104	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	97.6	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	79.4	64	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3217253)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	77.8	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216006)									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	99.2	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	91.3	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	66.9	63	131	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3217253)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	78.7	68.4	128	
EP080: BTEXN (QCLot: 3217253)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	74.7	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	84.5	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	81.5	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	84.8	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	86.4	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	85.9	62	138	
EP231: Perfluorinated Compounds (QCLot: 3215778)									
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	85.3	54	146	
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	92.4	54	134	
EP231: 6:2 Fluorotelomer Sulfonate (6:2 Fts)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	129	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

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Concentration	Spike Recovery(%) MS	Recovery Limits (%) Low High	
EG005T: Total Metals by ICP-AES (QCLot: 3220311)							
ES1327178-001	LO_SB03-0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	105	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	106	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	105	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	105	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	108	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	105	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3220312)							
ES1327178-001	LO_SB03-0.5	EG035T: Mercury	7439-97-6	5 mg/kg	84.0	70	130
EP004: Organic Matter (QCLot: 3217922)							
ES1327178-002	D01_31213_JK	EP004: Organic Matter	----	0.49 %	97.8	----	----
		EP004: Total Organic Carbon	----	0.28 %	99.6	----	----
EP074E: Halogenated Aliphatic Compounds (QCLot: 3217254)							
ES1327178-001	LO_SB03-0.5	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	75.3	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	73.6	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3217254)							
ES1327178-001	LO_SB03-0.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	88.8	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3216007)							
ES1327527-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	103	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	100	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	78.1	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	91.5	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	81.4	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3216007)							
ES1327527-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	99.2	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	107	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3216006)							
ES1327527-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	79.2	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	89.5	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	75.9	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3217253)							
ES1327178-001	LO_SB03-0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	77.1	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216006)							



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	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216006) - continued								
ES1327527-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	95.4	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	79.4	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	62.8	52	132	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3217253)								
ES1327178-001	LO_SB03-0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	76.3	70	130	
EP080: BTEXN (QCLot: 3217253)								
ES1327178-001	LO_SB03-0.5	EP080: Benzene	71-43-2	2.5 mg/kg	76.7	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	74.0	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	77.4	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	77.9	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	83.6	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	84.0	70	130		
EP231: Perfluorinated Compounds (QCLot: 3215778)								
ES1326974-013	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	79.7	54	146	
		EP231: PFOA	335-67-1	0.0025 mg/kg	86.7	54	134	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	78.4	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 (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP231: Perfluorinated Compounds (QCLot: 3215778)										
ES1326974-013	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	79.7	----	54	146	----	----
		EP231: PFOA	335-67-1	0.0025 mg/kg	86.7	----	54	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	78.4	----	56	138	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3216006)										
ES1327527-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	79.2	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	89.5	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	75.9	----	52	132	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216006)										
ES1327527-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	95.4	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	79.4	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	62.8	----	52	132	----	----

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 Work Order : ES1327178
 Client : ENVIRO RESOURCES MANAGEMENT
 Project : 0224198



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
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3220312) - continued										
ES1327178-001	LO_SB03-0.5	EG035T: Mercury	7439-97-6	5 mg/kg	84.0	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1327178	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	: 0224198	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 12-DEC-2013
C-O-C number	: ----	Issue Date	: 23-DEC-2013
Sampler	: ----	No. of samples received	: 2
Order number	: ----	No. of samples analysed	: 2
Quote number	: EN/009/13		

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) LO_SB03-0.5, D01_31213_JK	03-DEC-2013	----	----	----	17-DEC-2013	17-DEC-2013	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) LO_SB03-0.5, D01_31213_JK	03-DEC-2013	19-DEC-2013	01-JUN-2014	✓	19-DEC-2013	01-JUN-2014	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) LO_SB03-0.5, D01_31213_JK	03-DEC-2013	19-DEC-2013	31-DEC-2013	✓	20-DEC-2013	31-DEC-2013	✓
EP004: Organic Matter							
Soil Glass Jar - Unpreserved (EP004) LO_SB03-0.5, D01_31213_JK	03-DEC-2013	20-DEC-2013	31-DEC-2013	✓	20-DEC-2013	31-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Soil Glass Jar - Unpreserved (EP071) LO_SB03-0.5, D01_31213_JK	03-DEC-2013	17-DEC-2013	17-DEC-2013	✓	18-DEC-2013	27-JAN-2014	✓
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074) LO_SB03-0.5, D01_31213_JK	03-DEC-2013	17-DEC-2013	10-DEC-2013	*	17-DEC-2013	10-DEC-2013	*
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074) LO_SB03-0.5, D01_31213_JK	03-DEC-2013	17-DEC-2013	10-DEC-2013	*	17-DEC-2013	10-DEC-2013	*
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074) LO_SB03-0.5, D01_31213_JK	03-DEC-2013	17-DEC-2013	10-DEC-2013	*	17-DEC-2013	10-DEC-2013	*
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074) LO_SB03-0.5, D01_31213_JK	03-DEC-2013	17-DEC-2013	10-DEC-2013	*	17-DEC-2013	10-DEC-2013	*
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074) LO_SB03-0.5, D01_31213_JK	03-DEC-2013	17-DEC-2013	10-DEC-2013	*	17-DEC-2013	10-DEC-2013	*
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074) LO_SB03-0.5, D01_31213_JK	03-DEC-2013	17-DEC-2013	10-DEC-2013	*	17-DEC-2013	10-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	
EP074C: Sulfonated Compounds								
Soil Glass Jar - Unpreserved (EP074) LO_SB03-0.5, D01_31213_JK	03-DEC-2013	17-DEC-2013	10-DEC-2013	✖	17-DEC-2013	10-DEC-2013	✖	
EP074G: Trihalomethanes								
Soil Glass Jar - Unpreserved (EP074) LO_SB03-0.5, D01_31213_JK	03-DEC-2013	17-DEC-2013	10-DEC-2013	✖	17-DEC-2013	10-DEC-2013	✖	
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM)) LO_SB03-0.5, D01_31213_JK	03-DEC-2013	17-DEC-2013	17-DEC-2013	✔	19-DEC-2013	27-JAN-2014	✔	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) LO_SB03-0.5, D01_31213_JK	03-DEC-2013	17-DEC-2013	17-DEC-2013	✔	19-DEC-2013	27-JAN-2014	✔	
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) LO_SB03-0.5, D01_31213_JK	03-DEC-2013	17-DEC-2013	17-DEC-2013	✔	17-DEC-2013	17-DEC-2013	✔	
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080) LO_SB03-0.5, D01_31213_JK	03-DEC-2013	17-DEC-2013	17-DEC-2013	✔	17-DEC-2013	17-DEC-2013	✔	
EP231: Perfluorinated Compounds								
Soil Glass Jar - Unpreserved (EP231) LO_SB03-0.5, D01_31213_JK	03-DEC-2013	17-DEC-2013	01-JUN-2014	✔	17-DEC-2013	26-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		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Reaular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	2	20	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	13	15.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	19	10.5	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	2	19	10.5	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	1	7	14.3	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)							
Organic Matter	EP004	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	19	5.3	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	1	19	5.3	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	1	7	14.3	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)							
Organic Matter	EP004	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	19	5.3	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	1	19	5.3	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	1	7	14.3	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)							
Organic Matter	EP004	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	19	5.3	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	1	19	5.3	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	1	7	14.3	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



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)
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)
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
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)
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House

Page : 6 of 8
Work Order : ES1327178
Client : ENVIRO RESOURCES MANAGEMENT
Project : 0224198



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
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
Duplicate (DUP) RPDs							
EG005T: Total Metals by ICP-AES	ES1327227-009	Anonymous	Zinc	7440-66-6	35.0 %	0-20%	RPD exceeds LOR based limits
Laboratory Control Spike (LCS) Recoveries							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	3839070-007	----	Dibenz(a,h)anthracene	53-70-3	114 %	71.7-113%	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

- 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	D01_31213_JK	17-DEC-2013	10-DEC-2013	7	17-DEC-2013	10-DEC-2013	7
LO_SB03-0.5,	D01_31213_JK						
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved	D01_31213_JK	17-DEC-2013	10-DEC-2013	7	17-DEC-2013	10-DEC-2013	7
LO_SB03-0.5,	D01_31213_JK						
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved	D01_31213_JK	17-DEC-2013	10-DEC-2013	7	17-DEC-2013	10-DEC-2013	7
LO_SB03-0.5,	D01_31213_JK						
EP074D: Fumigants							
Soil Glass Jar - Unpreserved	D01_31213_JK	17-DEC-2013	10-DEC-2013	7	17-DEC-2013	10-DEC-2013	7
LO_SB03-0.5,	D01_31213_JK						
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved	D01_31213_JK	17-DEC-2013	10-DEC-2013	7	17-DEC-2013	10-DEC-2013	7
LO_SB03-0.5,	D01_31213_JK						
EP074F: Halogenated Aromatic 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
EP074F: Halogenated Aromatic Compounds - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved LO_SB03-0.5, D01_31213_JK	17-DEC-2013	10-DEC-2013	7	17-DEC-2013	10-DEC-2013	7
EP074G: Trihalomethanes						
Soil Glass Jar - Unpreserved LO_SB03-0.5, D01_31213_JK	17-DEC-2013	10-DEC-2013	7	17-DEC-2013	10-DEC-2013	7
EP074H: Naphthalene						
Soil Glass Jar - Unpreserved LO_SB03-0.5, D01_31213_JK	17-DEC-2013	10-DEC-2013	7	17-DEC-2013	10-DEC-2013	7

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

ALS 4000 - 1777-120 Warrington Road, Warrington, NSW 2120
Ph: 02 9329 3179 Fax: 02 9329 3178
ALS 4001 - 152 South Street, North Sydney, NSW 1585
Ph: 02 9329 3179 Fax: 02 9329 3178
ALS 4002 - 152 South Street, North Sydney, NSW 1585
Ph: 02 9329 3179 Fax: 02 9329 3178
ALS 4003 - 152 South Street, North Sydney, NSW 1585
Ph: 02 9329 3179 Fax: 02 9329 3178

ALS 4004 - 152 South Street, North Sydney, NSW 1585
Ph: 02 9329 3179 Fax: 02 9329 3178
ALS 4005 - 152 South Street, North Sydney, NSW 1585
Ph: 02 9329 3179 Fax: 02 9329 3178
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Ph: 02 9329 3179 Fax: 02 9329 3178
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Ph: 02 9329 3179 Fax: 02 9329 3178
ALS 4010 - 152 South Street, North Sydney, NSW 1585
Ph: 02 9329 3179 Fax: 02 9329 3178
ALS 4011 - 152 South Street, North Sydney, NSW 1585
Ph: 02 9329 3179 Fax: 02 9329 3178

ALS 4012 - 152 South Street, North Sydney, NSW 1585
Ph: 02 9329 3179 Fax: 02 9329 3178
ALS 4013 - 152 South Street, North Sydney, NSW 1585
Ph: 02 9329 3179 Fax: 02 9329 3178
ALS 4014 - 152 South Street, North Sydney, NSW 1585
Ph: 02 9329 3179 Fax: 02 9329 3178
ALS 4015 - 152 South Street, North Sydney, NSW 1585
Ph: 02 9329 3179 Fax: 02 9329 3178

CLIENT:

OFFICE:

PROJECT:

ORDER NUMBER:

PROJECT MANAGER:

SAMPLER:

COC emailed to ALS? (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:

TURNAROUND REQUIREMENTS :
(Standard TAT may be longer for some tests
e.g. Ultra Trace Organics)

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

ALS QUOTE NO.:

COC SEQUENCE NUMBER (Circle)

CONTACT PH:

RECEIVED BY:

SAMPLER MOBILE:

DATE/TIME:

EPD FORMAT (or default):

RELINQUISHED BY:

DATE/TIME:

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Environmental Division
Sydney
Work Order
ES1327179



Telephone : + 61-2-8784 8555

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (to codes below)	REFER	TOTAL CONTAINERS	ANALYSIS REQUIRED including SUITES (NB: Suite Codes must be listed to attract suite price) Where Marks are required, specify Total (unfilled bottle required) or Dissolved (field filtered bottle required).	Additional Information
1	LJ-MW03-0.2	3/12/13	S	1 DNR + 1 Bag				
2	LJ-MW03-0.5		S	↓				
3	LJ-SB04-0.5		S					
4	LJ-SB02-1.0		S	1 Bag				
		25/11	S	1 DNR (150ml)				
		25/11	S	1 DNR (150ml)				
		25/11	S	1 DNR (150ml)				
TOTAL								

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORG = Nitric Preserved ORG; SH = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfridge Unpreserved Plastic
V = VOA Vial HQ Preserved; VB = VOA Vial Sodium Bisulfite Preserved; VA = VOA Vial Sulfuric Preserved; AV = Amalgam Unpreserved Vial; SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Specimen Bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; D = Unpreserved Bag

Loren Schiavon

From: Joshua Kowald <Joshua.Kowald@erm.com>
Sent: Wednesday, 11 December 2013 6:14 PM
To: Joseph Ferring
Cc: Loren Schiavon
Subject: RE: Extra Samples

Hello Loren

Please analyse all samples with the identifier LJ and LO and D01 for the following:

- S-2 Metals
- S – 24 , TRH C6 – C36, PAH, Phenols, BTEX
- VOC target scan
- PFOS PFOA
- EP004

Please analyse TS8 and TSC8 for the following:

- BTEX, C6 – C9

Thank you
Joshua KOWald

-----Original Message-----

From: Joseph Ferring
Sent: Wednesday, December 11, 2013 4:16 PM
To: Joshua Kowald
Cc: Loren Schiavon (loren.schiavon@alsglobal.com)
Subject: FW: Extra Samples

Hey Josh, could you please reply back to Loren tonight to sort these?

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

-----Original Message-----

From: Loren Schiavon [mailto:loren.schiavon@alsglobal.com]
Sent: Wednesday, December 11, 2013 3:40 PM
To: Joseph Ferring
Subject: Extra Samples

Clea Henderson

From: Clea Henderson <Clea.Henderson@erm.com>
Sent: Friday, 27 December 2013 1:11 PM
To: ALSEnviro Sydney
Subject: FW: ES1327179 sample name

Hi Catherine,

Can you please change the sample ID name of sample 002 to "LJ_MW03_0.5"?

Thank you,

Clea Henderson
Chemical Engineer

Environmental Resources Management
Level 3, Tower 3, 13-38 Siddeley Street,
World Trade Centre, Docklands Victoria 3005

Tel: +61 3 8606 4188 (Direct)
Tel: +61 3 9696 8011 (switchboard)
Fax: +61 3 9696 8022

www.erm.com
clea.henderson@erm.com

From: Catherine Bondoc [<mailto:Catherine.Bondoc@alsglobal.com>]
Sent: Monday, December 23, 2013 3:03 PM
To: Clea Henderson; Loren Schiavon
Cc: ERM Australia Project Symphony MacGen; Joseph Ferring
Subject: RE: ES1327179 sample name

Hi Clea,

This would be Sample 2 on the COC the ID is LJ-MW03-0.5 however on the sample container it was sent as LJ-SB03-0.5.

Kind Regards

Catherine Bondoc

Client Services Officer
ALS | Environmental Division

277-289 Woodpark Road
Smithfield NSW 2164 Australia

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Please see our latest Enviromails:

[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](#)

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Winner of the inaugural CARE Award 2011 - Sustainable Technology & Innovation:

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



From: Clea Henderson [<mailto:Clea.Henderson@erm.com>]
Sent: Monday, 23 December 2013 2:57 PM
To: Catherine Bondoc; Loren Schiavon
Cc: ERM Australia Project Symphony MacGen; Joseph Ferring
Subject: ES1327179 sample name

Hi Catherine, Loren

Can you please take a look at the attached batch and let me know which sample number the SRN refers to in the general comments when it states "Sample LJ-MW03-0.5 on COC was received labelled LJ-SB03_0.5 on the jars."?

I just want to make the Client ID is right and will need to check with the field guys.

Thank you,

Clea Henderson
Chemical Engineer

Environmental Resources Management
Level 3, Tower 3, 13-38 Siddeley Street,
World Trade Centre, Docklands Victoria 3005

Tel: +61 3 8606 4188 (Direct)
Tel: +61 3 9696 8011 (switchboard)
Fax: +61 3 9696 8022

www.erm.com
clea.henderson@erm.com

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SAMPLE RECEIPT NOTIFICATION (SRN)**Comprehensive Report**

Work Order : **ES1327179**

Client : **ENVIRO RESOURCES MANAGEMENT** **Laboratory** : Environmental Division Sydney

Contact : MR JOE FERRING **Contact** : Barbara Hanna
Address : GRND FLOOR, 33 SAUNDERS STREET **Address** : 277-289 Woodpark Road Smithfield NSW Australia 2164
PYRMONT NSW AUSTRALIA 2009

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 : 0224186 **Page** : 1 of 2
Order number : ----
C-O-C number : ---- **Quote number** : ES2013ENVRES0354 (EN/009/13)
Site : ----
Sampler : ---- **QC Level** : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 16-DEC-2013 **Issue Date** : 17-DEC-2013 11:23
Client Requested Due Date : 23-DEC-2013 **Scheduled Reporting Date** : **23-DEC-2013**

Delivery Details

Mode of Delivery : Carrier **Temperature** : 5.8°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
- **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.**
- **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.**
- **Sample LJ-MW03-0.5 on COC was received labelled LJ-SB03_0.5 on the jars.**
- 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		
LJ_SB02_1.0	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
EP074 : Volatile Organic Compounds		
LJ_SB02_1.0	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
EP075(SIM) : PAH/Phenols (SIM)		
LJ_SB02_1.0	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
EP080 : TPH Volatiles/BTEX		
LJ_SB02_1.0	- Snap Lock Bag	- Soil Glass Jar - Unpreserved

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 - EP004 (Carbon) Total Organic Carbon (Calc.)	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP231 Perfluorocyclo Acids and Sulfonates by LC/MS/MS	SOIL - S-27 TRH/BTEX/PAH/Phenols/8Metals
ES1327179-001	03-DEC-2013 15:00	LJ_MW03_0.2	✓	✓	✓	✓
ES1327179-002	03-DEC-2013 15:00	LJ_SB03_0.5	✓	✓	✓	✓
ES1327179-003	03-DEC-2013 15:00	LJ_SB04_0.5	✓	✓	✓	✓
ES1327179-004	03-DEC-2013 15:00	LJ_SB02_1.0	✓	✓	✓	✓

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	
			Date	Evaluation	Date	Evaluation
EP004: Organic Matter						
LJ_SB02_1.0	Snap Lock Bag	10-DEC-2013	16-DEC-2013	✖	----	----
EP074: Volatile Organic Compounds						
LJ_MW03_0.2	Soil Glass Jar - Unpreserved	10-DEC-2013	16-DEC-2013	✖	----	----
LJ_SB02_1.0	Snap Lock Bag	10-DEC-2013	16-DEC-2013	✖	----	----
LJ_SB03_0.5	Soil Glass Jar - Unpreserved	10-DEC-2013	16-DEC-2013	✖	----	----
LJ_SB04_0.5	Soil Glass Jar - Unpreserved	10-DEC-2013	16-DEC-2013	✖	----	----

Requested Deliverables

MR JOE 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	: ES1327179	Page	: 1 of 9
Amendment	: 1		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOE FERRING	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	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	: 0224186	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 16-DEC-2013
Sampler	: ----	Issue Date	: 27-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



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



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				LJ_MW03_0.2	LJ_MW03_0.5	LJ_SB04_0.5	LJ_SB02_1.0	----
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	----
				ES1327179-001	ES1327179-002	ES1327179-003	ES1327179-004	----
Compound	CAS Number	LOR	Unit					
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	22.5	17.3	17.0	21.6	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	15	12	12	9	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	23	18	20	19	----
Copper	7440-50-8	5	mg/kg	27	25	26	25	----
Lead	7439-92-1	5	mg/kg	17	21	18	15	----
Nickel	7440-02-0	2	mg/kg	24	15	21	14	----
Zinc	7440-66-6	5	mg/kg	70	60	62	58	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----
EP004: Organic Matter								
Organic Matter	----	0.5	%	<0.5	0.6	<0.5	<0.5	----
Total Organic Carbon	----	0.5	%	<0.5	<0.5	<0.5	<0.5	----
EP074A: Monocyclic Aromatic Hydrocarbons								
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	----
Styrene	100-42-5	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	----
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	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				LJ_MW03_0.2	LJ_MW03_0.5	LJ_SB04_0.5	LJ_SB02_1.0	----	
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	----	
				ES1327179-001	ES1327179-002	ES1327179-003	ES1327179-004	----	
Compound	CAS Number	LOR	Unit						
EP074B: Oxygenated Compounds - Continued									
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	----	
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	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LJ_MW03_0.2	LJ_MW03_0.5	LJ_SB04_0.5	LJ_SB02_1.0	----
				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	ES1327179-001	ES1327179-002	ES1327179-003	ES1327179-004	----
EP074E: Halogenated Aliphatic Compounds - Continued								
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	----
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	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LJ_MW03_0.2	LJ_MW03_0.5	LJ_SB04_0.5	LJ_SB02_1.0	----
				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	ES1327179-001	ES1327179-002	ES1327179-003	ES1327179-004	----
EP075(SIM)A: Phenolic Compounds - Continued								
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	2.1	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	2.7	----
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	4.8	----
^ 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	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	1130	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	2640	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	3770	----
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	2420	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				LJ_MW03_0.2	LJ_MW03_0.5	LJ_SB04_0.5	LJ_SB02_1.0	----
				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	ES1327179-001	ES1327179-002	ES1327179-003	ES1327179-004	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued								
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	1390	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	3810	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	2420	----
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	----
EP231: Perfluorinated Compounds								
PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	----
PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	<0.005	<0.005	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	99.6	114	102	105	----
Toluene-D8	2037-26-5	0.1	%	100	113	102	105	----
4-Bromofluorobenzene	460-00-4	0.1	%	92.9	103	92.0	98.7	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	107	106	90.9	85.6	----
2-Chlorophenol-D4	93951-73-6	0.1	%	88.4	97.6	84.7	84.0	----
2,4,6-Tribromophenol	118-79-6	0.1	%	89.1	91.9	84.9	89.9	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	90.5	102	94.0	87.4	----
Anthracene-d10	1719-06-8	0.1	%	88.1	89.4	85.5	84.7	----
4-Terphenyl-d14	1718-51-0	0.1	%	80.7	83.1	80.1	82.4	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	88.4	101	90.3	92.8	----
Toluene-D8	2037-26-5	0.1	%	92.5	105	94.3	97.2	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				LJ_MW03_0.2	LJ_MW03_0.5	LJ_SB04_0.5	LJ_SB02_1.0	----
				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	ES1327179-001	ES1327179-002	ES1327179-003	ES1327179-004	----
EP080S: TPH(V)/BTEX Surrogates - Continued								
4-Bromofluorobenzene	460-00-4	0.1	%	85.5	93.8	85.7	89.9	----

Client sampling date / time



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

QUALITY CONTROL REPORT

Work Order	: ES1327179	Page	: 1 of 15
Amendment	: 1		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOE FERRING	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	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	: 0224186	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 16-DEC-2013
Sampler	: ----	Issue Date	: 27-DEC-2013
Order number	: ----		
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 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 (%)
EA055: Moisture Content (QC Lot: 3216837)									
ES1326974-015	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	27.3	26.4	3.6	0% - 20%
ES1327313-005	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	14.0	15.2	7.8	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 3221527)									
ES1327148-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	3	3	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	9	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	4	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	11	11	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	45	48	6.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	150	138	8.2	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	243	262	7.5	0% - 20%
ES1327179-004	LJ_SB02_1.0	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	19	21	11.2	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	14	12	12.8	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	9	10	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	25	19	26.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	15	15	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	58	64	10.3	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3221528)									
ES1327148-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.1	0.1	0.0	No Limit
ES1327179-004	LJ_SB02_1.0	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP004: Organic Matter (QC Lot: 3217922)									
ES1327178-001	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: 3217254)									
ES1327178-001	Anonymous	EP074: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP074: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: ortho-Xylene	95-47-6	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



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: 3217254) - continued									
ES1327178-001	Anonymous	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: 3217254)									
ES1327178-001	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: 3217254)									
ES1327178-001	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3217254)									
ES1327178-001	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: 3217254)									
ES1327178-001	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



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: 3217254) - continued									
ES1327178-001	Anonymous	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: 3217254)									
ES1327178-001	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: 3217254)									
ES1327178-001	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: 3217254)									
ES1327178-001	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3216624)									
ES1327179-001	LJ_MW03_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: 3216624)							
ES1327179-001	LJ_MW03_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



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: 3216624) - continued										
ES1327179-001	LJ_MW03_0.2	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: 3216623)										
ES1327179-001	LJ_MW03_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 Petroleum Hydrocarbons (QC Lot: 3217253)										
ES1327178-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3216623)										
ES1327179-001	LJ_MW03_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	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3217253)										
ES1327178-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
EP080: BTEXN (QC Lot: 3217253)										
ES1327178-001	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			
EP231: Perfluorinated Compounds (QC Lot: 3220345)										
ES1327179-001	LJ_MW03_0.2	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit	

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 Client : ENVIRO RESOURCES MANAGEMENT
 Project : 0224186



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 (%)
EP231: Perfluorinated Compounds (QC Lot: 3220345) - continued									
ES1327179-001	LJ_MW03_0.2	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	
EG005T: Total Metals by ICP-AES (QCLot: 3221527)									
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	105	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	117	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	105	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	116	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	111	81	133	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3221528)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	88.4	66	112	
EP004: Organic Matter (QCLot: 3217922)									
EP004: Organic Matter	----	0.5	%	<0.5	4.58 %	95.2	85	105	
EP004: Total Organic Carbon	----	0.5	%	<0.5	2.66 %	95.1	84	106	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3217254)									
EP074: Benzene	71-43-2	0.5	mg/kg	<0.5	1 mg/kg	97.1	64	118	
EP074: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	96.0	65	133	
EP074: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	96.2	65	127	
EP074: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	98.0	69	127	
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	93.6	64	126	
EP074: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	104	65	119	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	97.8	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	95.3	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	95.7	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	99.9	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	96.5	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	94.4	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	98.9	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	101	61	131	
EP074B: Oxygenated Compounds (QCLot: 3217254)									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	95.7	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	92.0	58	136	
		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: 3217254) - continued									
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	92.1	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	98.7	54	136	
		5	mg/kg	<5	----	----	----	----	
EP074C: Sulfonated Compounds (QCLot: 3217254)									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	102	54	126	
EP074D: Fumigants (QCLot: 3217254)									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	101	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	96.5	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	77.8	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	73.8	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	91.7	66	126	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3217254)									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	117	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	109	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	113	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	102	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	107	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	116	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	98.9	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	100	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	96.8	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	103	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	97.4	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	104	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	97.0	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	107	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	105	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	99.6	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	103	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	93.0	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	98.2	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	97.8	67	143	



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: 3217254) - continued									
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	93.5	62	122	
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	92.1	54	128	
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	91.0	55	129	
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	95.2	56	132	
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	100	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	93.5	19.8	134	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	90.7	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	106	48	136	
EP074F: Halogenated Aromatic Compounds (QCLot: 3217254)									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	97.0	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	92.8	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	97.5	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	98.7	62	130	
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	99.8	63	129	
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	96.6	63	129	
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	98.1	66	128	
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	97.5	54	134	
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	100	60	132	
EP074G: Trihalomethanes (QCLot: 3217254)									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	105	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	103	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	98.6	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	104	60	126	
EP074H: Naphthalene (QCLot: 3217254)									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	100	63	133	
		5	mg/kg	<5	----	----	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3216624)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	93.6	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	107	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	96.8	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	96.1	60.3	117	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	94.3	69	117	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	103	68	112	
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	101	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	97.4	57	111	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	94.1	68.9	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: 3216624) - continued									
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	43.4	3.9	57	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3216624)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	106	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	97.8	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	104	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	100	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	98.9	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	108	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	102	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	108	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	108	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	100	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	105	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	89.6	72.4	114	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3216623)									
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	102	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	94.8	64	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3217253)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	77.8	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216623)									
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	99.3	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	89.9	63	131	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3217253)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	78.7	68.4	128	
EP080: BTEXN (QCLot: 3217253)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	74.7	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	84.5	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	81.5	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	84.8	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	86.4	60	120	



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
EP080: BTEXN (QCLot: 3217253) - continued								
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	85.9	62	138
EP231: Perfluorinated Compounds (QCLot: 3220345)								
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	77.6	54	146
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	81.5	54	134
EP231: 6:2 Fluorotelomer Sulfonate (6:2 Fts)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	91.1	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: 3221527)							
ES1327148-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	101	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	106	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	108	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	108	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	100	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	108	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	111	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3221528)							
ES1327148-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	91.4	70	130
EP004: Organic Matter (QCLot: 3217922)							
ES1327178-002	Anonymous	EP004: Organic Matter	----	0.49 %	97.8	----	----
		EP004: Total Organic Carbon	----	0.28 %	99.6	----	----
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3217254)							
ES1327178-001	Anonymous	EP074: Benzene	71-43-2	2.5 mg/kg	76.7	70	130
		EP074: Toluene	108-88-3	2.5 mg/kg	83.3	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3217254)							
ES1327178-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	75.3	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	73.6	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3217254)							
ES1327178-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	88.8	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3216624)							
ES1327179-001	LJ_MW03_0.2	EP075(SIM): Phenol	108-95-2	10 mg/kg	101	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	85.2	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	
EP075(SIM)A: Phenolic Compounds (QCLot: 3216624) - continued								
ES1327179-001	LJ_MW03_0.2	EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	102	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	103	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	64.8	20	130	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3216624)								
ES1327179-001	LJ_MW03_0.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	105	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	108	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3216623)								
ES1327179-001	LJ_MW03_0.2	EP071: C10 - C14 Fraction	----	640 mg/kg	91.0	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	90.8	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	79.2	52	132	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3217253)								
ES1327178-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	77.1	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216623)								
ES1327179-001	LJ_MW03_0.2	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	116	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	84.0	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	59.4	52	132	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3217253)								
ES1327178-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	76.3	70	130	
EP080: BTEXN (QCLot: 3217253)								
ES1327178-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	76.7	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	74.0	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	77.4	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	77.9	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	83.6	70	130	
	91-20-3	2.5 mg/kg	84.0	70	130			
EP231: Perfluorinated Compounds (QCLot: 3220345)								
ES1327179-001	LJ_MW03_0.2	EP231: PFOS	1763-23-1	0.0025 mg/kg	74.5	54	146	
		EP231: PFOA	335-67-1	0.0025 mg/kg	85.3	54	134	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	121	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	Spike Recovery (%)	Recovery Limits (%)	RPDs (%)



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: 3216623)											
ES1327179-001	LJ_MW03_0.2	EP071: C10 - C14 Fraction	----	640 mg/kg	91.0	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	90.8	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	79.2	----	52	132	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216623)											
ES1327179-001	LJ_MW03_0.2	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	116	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	84.0	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	59.4	----	52	132	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3216624)											
ES1327179-001	LJ_MW03_0.2	EP075(SIM): Phenol	108-95-2	10 mg/kg	101	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	85.2	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	102	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	103	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	64.8	----	20	130	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3216624)											
ES1327179-001	LJ_MW03_0.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	105	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	108	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3217253)											
ES1327178-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	77.1	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3217253)											
ES1327178-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	76.3	----	70	130	----	----	
EP080: BTEXN (QCLot: 3217253)											
ES1327178-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	76.7	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	74.0	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	77.4	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	77.9	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	83.6	----	70	130	----	----	
	91-20-3	EP080: Naphthalene		2.5 mg/kg	84.0	----	70	130	----	----	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3217254)											
ES1327178-001	Anonymous	EP074: Benzene	71-43-2	2.5 mg/kg	76.7	----	70	130	----	----	
		EP074: Toluene	108-88-3	2.5 mg/kg	83.3	----	70	130	----	----	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3217254)											
ES1327178-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	75.3	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	73.6	----	70	130	----	----	
EP074F: Halogenated Aromatic Compounds (QCLot: 3217254)											
ES1327178-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	88.8	----	70	130	----	----	
EP004: Organic Matter (QCLot: 3217922)											



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: 3217922) - continued										
ES1327178-002	Anonymous	EP004: Organic Matter	----	0.49 %	97.8	----	----	----	----	----
		EP004: Total Organic Carbon	----	0.28 %	99.6	----	----	----	----	----
EP231: Perfluorinated Compounds (QCLot: 3220345)										
ES1327179-001	LJ_MW03_0.2	EP231: PFOS	1763-23-1	0.0025 mg/kg	74.5	----	54	146	----	----
		EP231: PFOA	335-67-1	0.0025 mg/kg	85.3	----	54	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	121	----	56	138	----	----
EG005T: Total Metals by ICP-AES (QCLot: 3221527)										
ES1327148-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	101	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	106	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	108	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	108	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	100	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	108	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	111	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3221528)										
ES1327148-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	91.4	----	70	130	----	----