

3 April 2013
Project No. 42213719

Darwin Waterfront Corporation
Ground Floor
Level 5, 7 Kitchener Dr
Darwin NT 0800

Attention: John Kassaras

Dear John

Subject: Classification of Stockpiled Excavated Material for Potential On-Site Reuse or Off-Site Disposal – Stage 2A – Earthworks 15 January 2013 to 29 January 2013

Introduction

URS Australia Pty Ltd (URS) has been requested by Darwin Waterfront Corporation (DWC) to provide a letter report on the status of material excavated during the construction works at Darwin Waterfront Stage 2A (the Site).

URS undertook sampling of the stockpile of spoil from the Stage 2A basement excavation at the Darwin Waterfront Precinct on 29 January 2013. As part of the environmental assessment works undertaken by URS, this material was sampled with the purpose of classification for potential on-site reuse, as per site specific acceptance criteria, or off-site disposal as per Northern Territory Waste Classification Guidelines.

Methodology

It is estimated that approximately 2,000 m³ of spoil material had been excavated from the Stage 2A Site between 15 and 29 April 2013 and stockpiled in the stockpile management area. A total of 20 primary samples (1 sample per 100 m³ of bulked out spoil), three field duplicate and one field triplicate samples were taken from the excavated spoil material. All collected samples were analysed, giving an analytical rate exceeding the 1 sample per 250 m³ of bulked out spoil recommended by the Victorian EPA Industrial Waste Resource Guidelines, IWRG 702 (sampling density for stockpiles 2000m³ when using 95% UCL average).

All samples were collected with the assistance of a 5 T excavator to cut representative cross sections through the stockpile profile. Samples were collected by hand from the excavated spoil, using dedicated nitrile gloves for each sample, and placed into laboratory supplied jars for transport to the laboratory. Standard environmental protocols were followed with respect to sample collection, and laboratory analyses included quality assurance/quality control samples to enable URS' assessment of the suitability of the data for interpretive use.

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J:\Jobs\42213719\2012-13 STAGE 2A\Stockpile Classification and Off-site Disposal\29 January 2013\Classification Letter - Stockpiles 01A and 02A_D (2) (2).docx

Soil analytical results have been compared against the following guidelines for assessment of material for off-site disposal, as summarised in **Attachment A**:

- The “NT Waste Classification Guidelines” adopted from NSW DECCW Waste Classification Guidelines (2008); and
- The site specific acceptance criteria (URS RAP V6 9th August 2005) based on National Environment Protection (Assessment of Site Contamination) Measure – Health Based Investigation Levels (NEPM, 1999) – HILs E and F and Ecological Intervention Levels (EILs); and Dutch Intervention Criteria (2000).

Data Validation

URS has undertaken a review of the laboratory analytical results and considers the data acceptable for interpretive use as described in **Attachment D**. The following points have been raised and considered when making this assertion.

- No Field Blank, Trip Blank or Method Blank were analysed; hence potential cross-contamination has not been assessed directly. As no samples, including the Rinsate Blank, were reported to contain BTEXN or volatile TPH and all samples were taken from the excavator's bucket, fresh gloves and placed directly into the sample container, the potential for cross-contamination is minimal; therefore, this is not considered to affect the interpretation of the results.
- Elevated Relative Percentage Difference (RPDs) were reported for Zinc in field sample (SP02B_02_290113) and its duplicate (DUP01_290113) and Barium and Beryllium in field sample (SP02B_19_290113) and its triplicate (DUP04_290113). This apparent lack of precision is likely due to the inherent heterogeneity of the distribution of metals in soils at the site. This should be taken into consideration when evaluating individual results that are close to investigation levels.
- Field duplicate RPDs was elevated for Moisture Content in field sample (SP02B_02_290113) and its duplicate (DUP01_290113); however, as moisture content is not considered a parameter of potential concern, this is not considered to affect the interpretation of the results, and should be attributed to the heterogeneity of soils at this site.
- Laboratory duplicate RPDs exceeded LOR based limits for TPH C10 -C14 in an anonymous sample. Due to the presence of other quality control data, including Intra- and Inter Laboratory duplicates, and as these analytes were not reported above the laboratory LOR, the precision of the analytical data for these analytes is considered acceptable.

Laboratory Results

The laboratory results are summarised and assessed against the relevant off-site disposal criteria in **Attachment A**. Laboratory analytical reports and chain of custody (COC) documentation are provided as **Attachment B**.

On-Site Reuse – Site Specific Acceptance Criteria (URS RAP V6 – 9 August 2005)**Table 1 On-Site Reuse Criteria – Site Specific Acceptance Criteria**

Analyte	^a Class 1 Criteria	^a Class 2A Criteria	# of Samples	# >LOR	# > Guideline	95% UCL
Arsenic	20	200	23	18	3	17.2
Barium	300	-	23	23	4	226.3
Cadmium	3	40	23	6	3	4.9
Chromium	-	-	23	23	NA	50.3
Cobalt	-	200	23	5	NA	NA
Copper	100	2,000	23	22	1	63.4
Lead	600	600	23	23	3	646.8
Manganese	500	3,000	23	23	0	88.9
Nickel	60	600	23	21	0	5
Zinc	200	14,000	23	22	5	2,387
Vanadium	50	-	23	23	20	94.2
Total PAHs	40	100	23	1	0	NA

^a URS RAP V6 9th August 2005

No individual sample results, or 95% UCL of the mean, exceeded the site specific Class 1 guidelines for the following analytes:

- Manganese;
- Nickel; and
- PAHs.

Individual sample results exceeded the site specific Class 1 guidelines for the following analytes. The 95% UCL of the mean for the same analyte did not exceed the site specific Class 1 guidelines:

- Arsenic;
- Barium; and
- Copper.

Individual sample results exceeded the site specific Class 1 guidelines for the following analytes, and the 95% UCL of the mean for the same analyte exceeded the site specific Class 1 guidelines:

- Cadmium; and
- Zinc.

Two individual sample results for lead (1,520 and 1,550 mg/kg) and the 95% UCL of the mean exceeded site specific Class 2A guidelines for lead as reported in **Table 1**.

Twenty three (of 23) individual sample results and the 95% UCL of the mean exceeded the site specific Class 1 guidelines for vanadium as reported in **Table 1**. The exceedance in this instance is

considered indicative of background concentrations based on no historical handling of vanadium at the site. Exceedance of the guideline was noted in all 23 samples analysed for vanadium and both individual samples results and the 95% UCL of the mean are within the range that is considered background based on the "National Environment Protection (Assessment of Site Contamination) Measure [NEPM], Schedule B(1), "Investigation Levels for Soil and Groundwater" document (background range 20 to 500 mg/kg).

There was no applicable site specific Class 1 guideline value for these analytes:

- Chromium; and
- Cobalt.

Off-Site Disposal Criteria – NT Waste Classification Guidelines

Table 2 Off-Site Disposal Criteria – NT Waste Classification Guideline

Analyte	NT Waste Classification Guideline (No Leach)	NT Waste Classification Guideline (with Leach)	# of Samples	# >LOR	# > Guideline	95% UCL
Arsenic	100	500	23	18	0	17.2
Barium	-	-	23	23	NA	226.3
Cadmium	20	100	23	6	0	4.9
Chromium	-	-	23	23	NA	50.3
Cobalt	-	-	23	5	NA	NA
Copper	-	-	23	22	NA	63.4
Lead	100	1,500	23	23	6	646.8
Manganese	-	-	23	23	NA	88.9
Nickel	40	1,050	23	21	0	5
Zinc	-	-	23	22	NA	2387
Vanadium	-	-	23	23	NA	94.2
Total PAHs	-	-	23	1	0	NA

No individual sample results, or 95% UCL of the mean, exceeded the NT Waste Classification guidelines for the following analytes:

- Arsenic;
- Cadmium; and
- Nickel.

Two individual sample results for lead (283 and 1,020 mg/kg) and the 95% UCL of the mean exceeded the NT Waste Classification guidelines (No Leach) for lead as reported in **Table 2**. Four individual sample results for lead and the 95% UCL of the mean exceeded the NT Waste Classification guidelines (with Leach) for lead.

There was no applicable NT Waste Classification guideline value for these analytes:

- Barium;
- Chromium;
- Cobalt;
- Copper;
- Manganese;
- Zinc;
- Vanadium; and
- PAHs.

Conclusion and Recommendation

The stockpiled material resultant from the Stage 2A basement excavation has been characterised based on the results of the field observations, sampling and analysis conducted by URS as presented in the attached tables.

On the basis of the analytical results for samples collected from the material excavated between 15 January 2013 and 29 January 2013 at a rate of at least 1:100 m³, the stockpiled material is classified as Restricted Solid Waste with reference to the NT Waste Classification guidelines

On the basis of the analytical results for samples collected from the material excavated between 15 January 2013 and 29 January 2013 at a rate of at least 1:100 m³, the stockpiled material is classified as Class 2B with reference to the site specific acceptance criteria detailed in the RAP (URS, 9 August 2005).

Classification and volume of assessed material

Estimated Volume and Tonnage	2,000 m ³	3,200 T
Classification On-Site Reuse	Class 2B	
Classification Off-Site Disposal	Restricted solid waste	

URS notes that this letter and the attached information is intended to support the process of on-site reuse or off-site disposal of the described soils to a suitable end-point. URS does not provide any recommendation or endorsement with respect to disposal of this material to any site; responsibility for accepting material to a third party site shall be the onus of the owner of that site.

Limitations

URS Australia Pty Ltd (URS) has prepared this report in accordance with the usual care and thoroughness of the consulting profession for the use of Darwin Waterfront Corporation (DWC). A complete or partial copy of the report may only be provided by DWC to the EPA (Victoria) accredited Environmental Auditor (Contaminated Land) appointed by DWC to the project and to developers and contractors (Interested Parties) working on the Darwin Waterfront Redevelopment Project if the entire limitations statement of this report is included in the complete or partial copy of this report. Whilst URS does not admit that any action may exist or be available to any Interested Party, this report may only be relied on by an Interested Party with the written consent of DWC and

on the basis that subject to any law the terms of which cannot be excluded or modified by agreement:

- (i) The maximum amount payable (if any) by URS to Interested Parties or any party claiming through an Interested Party in aggregate, whether in contract, tort or otherwise, in relation to claims, damages, liabilities, losses or expenses, under or in any way related to this report and/or its appendices or the services performed by URS to prepare the Report, shall be A\$2,000,000; and
- (ii) If there is more than one Interested Party, the maximum amount payable to any and all Interested Parties in total shall be A\$2,000,000.

Except as specifically stated in this limitations statement, this report may not be used by any third party.

This report is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this report. It is prepared in accordance with the scope of work and for the purpose outlined in the proposal dated 24 August 2006 and subsequent requests for this specific task in an email dated 17 December 2012.

The methodology adopted and sources of information used by URS are outlined in this report. Where this report indicates that information has been provided to URS by third parties, URS has made no independent verification of this information except as expressly stated in this report. No indications were found during our investigations that information contained in this report as provided to URS was false.

This report was prepared between 7 February 2013 and 3 April 2013 and is based on the conditions encountered and information reviewed at the time of preparation. URS disclaims responsibility for any changes that may have occurred after this time.

We trust that the information detailed within this letter informs your requirements. Should you require further assistance please contact the undersigned.

Yours sincerely
URS Australia Pty Ltd

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Environmental Scientist

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Senior Environmental Geologist

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3 April 2013

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Attachments

Attachment A Summary of Analytical Results

Attachment B Laboratory reports and Chain of Custody Forms

Attachment C Data Validation and Statistical Analysis

Attachment D Statistical Analysis

Attachment A

Table 1
Analytical Results -
Waterfront Stage 2A - Waterfront Stage 2A
Darwin Waterfront Corporation

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Table 1
Analytical Results -
Waterfront Stage 2A - Waterfront Stage 2A
Darwin Waterfront Corporation

[illegible]

Table 2
Analytical Results -
Waterfront Stage 2A - Waterfront Stage 2A
Darwin Waterfront Corporation

Location		SP02B_01	SP02B_02	SP02B_02	SP02B_03	SP02B_04	SP02B_05	SP02B_06	SP02B_06	SP02B_07	SP02B_08
Sample ID		SP02B_01_290113	SP02B_02_290113	DUP01_290113	SP02B_03_290113	SP02B_04_290113	SP02B_05_290113	SP02B_06_290113	DUP02_290113	SP02B_07_290113	SP02B_08_290113
Sampled Date		29/01/2013	29/01/2013	29/01/2013	29/01/2013	29/01/2013	29/01/2013	29/01/2013	29/01/2013	29/01/2013	29/01/2013
Sample Type		Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal
Lab Batch		ES1302091	ES1302091	ES1302091	ES1302091	ES1302091	ES1302091	ES1302091	ES1302091	ES1302091	ES1302091
Method_Type	ChemName	output unit	EQL	NSW 2008 General Solid Waste (No Leaching)	NSW 2008 General Solid Waste (with leached)						
TPH - Semivolatile Fraction	C10-C14 fraction	mg/kg	50			<50	<50	<50	<50	<50	<50
	C15-C28 fraction	mg/kg	100			<100	<100	<100	<100	<100	<100
	C29-C36 fraction	mg/kg	100			<100	<100	<100	<100	<100	<100
	C10-C36 fraction (sum)	mg/kg	50	10000		<50	<50	<50	<50	<50	<50
	C6-C9 fraction	mg/kg	10	650		<10	<10	<10	<10	<10	<10
TPH - Semivolatile Fraction	>C10-C16 fraction	mg/kg	50			<50	<50	<50	<50	<50	<50
	>C16-C34 fraction	mg/kg	100			<100	<100	<100	<100	<100	<100
	>C34-C40 fraction	mg/kg	100			<100	<100	<100	<100	<100	<100
	>C10-C40 fraction (sum)	mg/kg	50			<50	<50	<50	<50	<50	<50
	C6-C10 fraction (F1 minus BTEX)	mg/kg	10			<10	<10	<10	<10	<10	<10
TPH Volatiles/BTEX	C6-C10 fraction	mg/kg	10			<10	<10	<10	<10	<10	<10
	Benzene	mg/kg	0.2	10	18	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Toluene	mg/kg	0.5	288	518	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Ethylbenzene	mg/kg	0.5	600	1080	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	m&p-Xylene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	o-Xylene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Total Xylenes	mg/kg	0.5	1000	1800	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Naphthalene (VOC)	mg/kg	1			<1	<1	<1	<1	<1	<1
	Naphthalene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Acenaphthylene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Acenaphthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PAH/Phenols (SIM)	Anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Fluorene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Phenanthrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benz(a)anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(b)fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(k)fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene	mg/kg	0.5	0.8	10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene TEQ	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Chrysene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Pyrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(g,h,i)perylene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dibenz(a,h)anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Indeno(1,2,3-cd)pyrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Sum of PAHs	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Phenol	mg/kg	0.5		518	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Chlorophenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Methylphenol (o-Cresol)	mg/kg	0.5	4000	7200	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	3,4-Methylphenol (m&p-Cresol)	mg/kg	1			<1	<1	<1	<1	<1	<1
	2-Nitrophenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4-Dichlorophenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4-Dimethylphenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,6-Dichlorophenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Chloro-3-methylphenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4,6-Trichlorophenol	mg/kg	0.5	40	72	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4,5-Trichlorophenol	mg/kg	0.5	8000	14400	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Pentachlorophenol	mg/kg	2			<2	<2	<2	<2	<2	<2
	Hexavalent Chromium by Alkaline Digestion and DA F	mg/kg	0.5	100	1900	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Total Mercury by FIMS	mg/kg	0.1	4	50	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Total Metals by ICP-AES	mg/kg	5	100	500	5	48	53	6	37	16
	Arsenic	mg/kg	5			80	480	400	120	540	410
	Barium	mg/kg	10			<1	<1	<1	<1	<1	<1
	Beryllium	mg/kg	1	20	100	<1	13	17	<1	6	2
	Cadmium	mg/kg	1	20	100	<1	28	35	<1	37	72
	Chromium	mg/kg	2			<2	2	<2	2	<2	2
	Cobalt	mg/kg	2			16	63	62	18	48	186
	Copper	mg/kg	5			30	1550	1520	55	1020	283
	Lead	mg/kg	5	100	1500	73	98	88	65	136	95
	Manganese	mg/kg	5			4	5	4	4	5	4
	Nickel	mg/kg	2	40	1050	53	3380	3170	120	1410	359
	Zinc	mg/kg	5			60	57	66	68	94	128
	Vanadium	mg/kg	5			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Polychlorinated Biphenyls (PCB)	mg/kg	0.1	50		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pesticides by GCMS	Aldrin	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Dieldrin	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	a-BHC	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	b-BHC	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	d-BHC	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	g-BHC (Lindane)	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	cis-Chlordane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	trans-Chlordane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	DDD	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	DDE	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	DDT	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Endosulfan 1	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endosulfan 2	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endosulfan sulfate	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endrin	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endrin aldehyde	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endrin ketone	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Heptachlor	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Heptachlor epoxide	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Hexachlorobenzene (HCB)	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Methoxychlor	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Moisture Content	%	1			13.8	17.9	10.6	12	9.8	12.3
										17.9	14.2
										13.8	13.8

Table 2
Analytical Results -
Waterfront Stage 2A - Waterfront Stage 2A
Darwin Waterfront Corporation

				Location	SP02B_09	SP02B_10	SP02B_11	SP02B_12	SP02B_13	SP02B_14	SP02B_14	SP02B_15	SP02B_16	SP02B_17
				Sample ID	SP02B_09_290113	SP02B_10_290113	SP02B_11_290113	SP02B_12_290113	SP02B_13_290113	SP02B_14_290113	DUP03_290113	SP02B_15_290113	SP02B_16_290113	SP02B_17_290113
				Sampled Date	29/01/2013	29/01/2013	29/01/2013	29/01/2013	29/01/2013	29/01/2013	29/01/2013	29/01/2013	29/01/2013	29/01/2013
				Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal
				Lab Batch	ES1302091	ES1302091	ES1302091	ES1302091	ES1302091	ES1302091	ES1302091	ES1302091	ES1302091	ES1302091

Method_Type	ChemName	output unit	EQL	NSW 2008 General Solid Waste (No Leaching)	NSW 2008 General Solid Waste (with leached)									
TPH - Semivolatile Fraction	C10-C14 fraction	mg/kg	50			<50	<50	<50	<50	<50	<50	<50	<50	<50
	C15-C28 fraction	mg/kg	100			<100	<100	<100	<100	<100	<100	<100	<100	<100
	C29-C36 fraction	mg/kg	100			<100	<100	<100	<100	<100	<100	<100	<100	<100
	C10-C36 fraction (sum)	mg/kg	50		10000	<50	<50	<50	<50	<50	<50	<50	<50	<50
	C6-C9 fraction	mg/kg	10		650	<10	<10	<10	<10	<10	<10	<10	<10	<10
TPH - Semivolatile Fraction	>C10-C16 fraction	mg/kg	50			<50	<50	<50	<50	<50	<50	<50	<50	<50
	>C16-C34 fraction	mg/kg	100			<100	<100	<100	<100	<100	<100	<100	<100	<100
	>C34-C40 fraction	mg/kg	100			<100	<100	<100	<100	<100	<100	<100	<100	<100
	>C10-C40 fraction (sum)	mg/kg	50			<50	<50	<50	<50	<50	<50	<50	<50	<50
	C6-C10 fraction (F1 minus BTEX)	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10
TPH Volatiles/BTEX	C6-C10 fraction	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10
	Benzene	mg/kg	0.2	10	18	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Toluene	mg/kg	0.5	288	518	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Ethylbenzene	mg/kg	0.5	600	1080	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	m&p-Xylene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	o-Xylene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Total Xylenes	mg/kg	0.5	1000	1800	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Naphthalene (VOC)	mg/kg	1			<1	<1	<1	<1	<1	<1	<1	<1	<1
	Naphthalene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Acenaphthylene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PAH/Phenols (SIM)	Acenaphthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Fluorene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Phenanthrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6
	Fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7
	Benz(a)anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(b)fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(k)fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene	mg/kg	0.5	0.8	10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene TEQ	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Chrysene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Pyrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7
	Benzo(g,h,i)perylene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dibenz(a,h)anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Indeno(1,2,3-cd)pyrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Sum of PAHs	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2
	Phenol	mg/kg	0.5		518	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Chlorophenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Methylphenol (o-Cresol)	mg/kg	0.5	4000	7200	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	3-84-Methylphenol (m&p-Cresol)	mg/kg	1			<1	<1	<1	<1	<1	<1	<1	<1	<1
	2-Nitrophenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4-Dichlorophenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4-Dimethylphenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,6-Dichlorophenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Chloro-3-methylphenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4,6-Trichlorophenol	mg/kg	0.5	40	72	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4,5-Trichlorophenol	mg/kg	0.5	8000	14400	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Pentachlorophenol	mg/kg	2			<2	<2	<2	<2	<2	<2	<2	<2	<2
Hexavalent Chromium by Alkaline Digestion and DA F	Chromium (hexavalent)	mg/kg	0.5	100	1900	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Mercury by FIMS	Mercury	mg/kg	0.1	4	50	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Metals by ICP-AES	Arsenic	mg/kg	5	100	500	6	<5	<5	8	7	<5	7	<5	<5
	Barium	mg/kg	10			90	20	250	50	10	130	90	220	90
	Beryllium	mg/kg	1	20	100	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Cadmium	mg/kg	1	20	100	<1	<1	<1	<1	<1	<1	1	<1	<1
	Chromium	mg/kg	2			42	23	33	84	74	43	45	36	30
	Cobalt	mg/kg	2			<2	<2	<2	<2	<2	<2	<2	<2	<2
	Copper	mg/kg	5			9	24	14	5	<5	20	10	28	13
	Lead	mg/kg	5	100	1500	11	8	17	12	11	15	17	105	34
	Manganese	mg/kg	5			84	79	65	100	91	106	84	98	91
	Nickel	mg/kg	2	40	1050	3	5	5	<2	<2	5	4	6	5
	Zinc	mg/kg	5			19	15	37	8	<5	26	24	175	89
	Vanadium	mg/kg	5			58	45	48	192	178	79	72	64	49
Polychlorinated Biphenyls (PCB)	Polychlorinated Biphenyls	mg/kg</												

Table 2
Analytical Results -
Waterfront Stage 2A - Waterfront Stage 2A
Darwin Waterfront Corporation

Location	SP02B 18	SP02B 19	SP02B 19	SP02B 20
Sample ID	SP02B 18 290113	SP02B 19 290113	DUP 04 290113	SP02B 20 290113
Sampled Date	29/01/2013	29/01/2013	29/01/2013	29/01/2013
Sample Type	Normal	Normal	Triplicate	Normal
Lab Batch	ES1302091	ES1302091	EB1302398	ES1302091

Method Type	ChemName	output unit	EQL	NSW 2008 General Solid Waste (No Leaching)	NSW 2008 General Solid Waste (with leached)				
TPH - Semivolatile Fraction	C10-C14 fraction	mg/kg	50			<50	<50	<50	<50
	C15-C28 fraction	mg/kg	100			<100	<100	<100	<100
	C29-C36 fraction	mg/kg	100			<100	<100	<100	<100
	C10-C36 fraction (sum)	mg/kg	50		10000	<50	<50	<50	<50
	C6-C9 fraction	mg/kg	10		650	<10	<10	<10	<10
TPH - Semivolatile Fraction	>C10-C16 fraction	mg/kg	50			<50	<50	<50	<50
	>C16-C34 fraction	mg/kg	100			<100	<100	<100	<100
	>C34-C40 fraction	mg/kg	100			<100	<100	<100	<100
	>C10-C40 fraction (sum)	mg/kg	50			<50	<50	<50	<50
TPH Volatiles/BTEX	C6-C10 fraction (F1 minus BTEX)	mg/kg	10			<10	<10	<10	<10
	C6-C10 fraction	mg/kg	10			<10	<10	<10	<10
	Benzene	mg/kg	0.2	10	18	<0.2	<0.2	<0.2	<0.2
	Toluene	mg/kg	0.5	288	518	<0.5	<0.5	<0.5	<0.5
	Ethylbenzene	mg/kg	0.5	600	1080	<0.5	<0.5	<0.5	<0.5
	m&p-Xylene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	o-Xylene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	Total Xylenes	mg/kg	0.5	1000	1800	<0.5	<0.5	<0.5	<0.5
	Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2
	Naphthalene (VOC)	mg/kg	1			<1	<1	<1	<1
PAH/Phenols (SIM)	Naphthalene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	Acenaphthylene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	Acenaphthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	Anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	Fluorene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	Phenanthrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	Fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	Benz(a)anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	Benzo(b)fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	Benzo(k)fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene	mg/kg	0.5	0.8	10	<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene TEQ	mg/kg	0.5			<0.5	<0.5	-	<0.5
	Chrysene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	Pyrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	Benzo(g,h,i)perylene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	Dibenz(a,h)anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	Indeno(1,2,3-cd)pyrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	Sum of PAHs	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	Phenol	mg/kg	0.5		518	<0.5	<0.5	<0.5	<0.5
	2-Chlorophenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	2-Methylphenol (o-Cresol)	mg/kg	0.5	4000	7200	<0.5	<0.5	<0.5	<0.5
	3,4-Methylphenol (m&p-Cresol)	mg/kg	1			<1	<1	<1	<1
	2-Nitrophenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	2,4-Dichlorophenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	2,4-Dimethylphenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	2,6-Dichlorophenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	4-Chloro-3-methylphenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5
	2,4,6-Trichlorophenol	mg/kg	0.5	40	72	<0.5	<0.5	<0.5	<0.5
	2,4,5-Trichlorophenol	mg/kg	0.5	8000	14400	<0.5	<0.5	<0.5	<0.5
	Pentachlorophenol	mg/kg	2			<2	<2	<2	<2
Hexavalent Chromium by Alkaline Digestion and DA F	Chromium (hexavalent)	mg/kg	0.5	100	1900	<0.5	<0.5	-	<0.5
Total Mercury by FIMS	Mercury	mg/kg	0.1	4	50	<0.1	<0.1	<0.1	<0.1
Total Metals by ICP-AES	Arsenic	mg/kg	5	100	500	6	8	12	12
	Barium	mg/kg	10			70	100	240	150
	Beryllium	mg/kg	1	20	100	<1	<1	<1	<1
	Cadmium	mg/kg	1	20	100	<1	<1	2	1
	Chromium	mg/kg	2			47	34	69	31
	Cobalt	mg/kg	2			<2	<2	2	<2
	Copper	mg/kg	5			12	20	24	22
	Lead	mg/kg	5	100	1500	17	67	92	169
	Manganese	mg/kg	5			54	68	74	60
	Nickel	mg/kg	2	40	1050	3	4	10	4
	Zinc	mg/kg	5			27	172	187	274
	Vanadium	mg/kg	5			72	78	86	58
Polychlorinated Biphenyls (PCB)	Polychlorinated Biphenyls	mg/kg	0.1		50	<0.1	<0.1	<0.4	<0.1
Pesticides by GCMS	Aldrin	mg/kg	0.05			<0.05	<0.05	<0.2	<0.05
	Dieldrin	mg/kg	0.05			<0.05	<0.05	<0.2	<0.05
	a-BHC	mg/kg	0.05			<0.05	<0.05	<0.2	<0.05
	b-BHC	mg/kg	0.05			<0.05	<0.05	<0.2	<0.05
	d-BHC	mg/kg	0.05			<0.05	<0.05	<0.2	<0.05
	g-BHC (Lindane)	mg/kg	0.05			<0.05	<0.05	<0.2	<0.05
	cis-Chlordane	mg/kg	0.05			<0.05	<0.05	<0.2	<0.05
	trans-Chlordane	mg/kg	0.05			<0.05	<0.05	<0.2	<0.05
	DDD	mg/kg	0.05			<0.05	<0.05	<0.2	<0.05
	DDE	mg/kg	0.05			<0.05	<0.05	<0.2	<0.05
	DDT	mg/kg	0.2			<0.2	<0.2	<0.8	<0.2
	Endosulfan 1	mg/kg	0.05			<0.05	<0.05	<0.2	<0.05
	Endosulfan 2	mg/kg	0.05			<0.05	<0.05	<0.2	<0.05
	Endosulfan sulfate	mg/kg	0.05			<0.05	<0.05	<0.2	<0.05
	Endrin	mg/kg	0.05			<0.05	<0.05	<0.2	<0.05
	Endrin aldehyde	mg/kg	0.05			<0.05	<0.05	<0.2	<0.05
	Endrin ketone	mg/kg	0.05			<0.05	<0.05	<0.2	<0.05
	Heptachlor	mg/kg	0.05			<0.05	<0.05	<0.2	<0.05
	Heptachlor epoxide	mg/kg	0.05			<0.05	<0.05	<0.2	<0.05
	Hexachlorobenzene (HCB)	mg/kg	0.05			<0.05	<0.05	<0.2	<0.05
	Methoxychlor	mg/kg	0.2			<0.2	<0.2	<0.8	<0.2
Moisture Content	Moisture Content	%	1			15.1	16.8	11.4	13.7

Attachment B

URS		CHAIN OF CUSTODY - DARWIN WATERFRONT PROJECT				FOR LABORATORY USE ONLY	
ADDRESS: URS Australia Level 3, 99 Mitchell Street GPO Box 2005 Darwin, Northern Territory 0800		LABORATORY: ALS (All results to be provided in NRED format)		Custody Seal? Y N NA			
PHONE NO: 08 6903 2600 FAX NO: 08 6941 3920		277-288 Woodpark Road Smithfield NSW 2164		Free ice / frozen icebricks			
URS PROJECT NO: 42213719		TURNAROUND DETAILS Std 5 Day TAT**		COC SEQUENCE NUMBER 2 3 4			
URS PM: Andrew Piggan		PHONE NO: 02 8784 8585 FAX NO: 02 8784 8500		Random Sample Temperature on Receipt			
URS SAMPLES: Bok Asgaard		Contract No.		RECEIVED BY: <i>David</i>		RELINQUISHED BY:	
		URS CONTACT: Bok Asgaard		DATE: 30/1		TIME: 1630	
				DATE: 30/1		TIME: 1630	

COMMENTS: Please contact Bok for any queries 0423 350 089		CONTAINER TYPE & PRESERVATIVE										ANALYSIS REQUIRED												
		Liquid																						
Batch No	SAMPLE Location	SAMPLE ID	DATE	MATRIX (Solid / Liquid)	Total Containers																			
1		SP02B_01_290113	29/1/13	Soil	1																			
2		SP02B_02_290113	29/1/13	Soil	1																			
3		SP02B_03_290113	29/1/13	Soil	1																			
4		SP02B_04_290113	29/1/13	Soil	1																			
5		SP02B_05_290113	29/1/13	Soil	1																			
6		SP02B_06_290113	29/1/13	Soil	1																			
7		SP02B_07_290113	29/1/13	Soil	1																			
8		SP02B_08_290113	29/1/13	Soil	1																			
9		SP02B_09_290113	29/1/13	Soil	1																			
10		SP02B_10_290113	29/1/13	Soil	1																			
11		SP02B_11_290113	29/1/13	Soil	1																			
				TOTALS	11										11									

Environmental Division
Sydney

Work Order

ES1302091



Telephone : + 61-2-8784 8555

URS		CHAIN OF CUSTODY - DARWIN WATERFRONT PROJECT		FOR LABORATORY USE ONLY	
ADDRESS: URS Australia Level 3, 93 Mitchell Street GPO Box 2005 Darwin, Northern Territory 0800		LABORATORY: ALS 277-289 Woodpark Road Smithfield NSW 2164		All results to be provided in MIRE format	
PHONE NO: 08 8980 2900	FAX NO: 08 8941 3900	TURNAROUND DETAILS Std 5 Day TAT**	COC SEQUENCE NUMBER 2 3 4 please check		
URS PROJECT NO: 42213719	Contract No.	RELINQUISHED BY: <i>Bek Aggaard</i>		RECEIVED BY: <i>David</i>	
URS PM: Andrew Piggitt	URS CONTACT: Bek Aggaard	DATE: 29/01/2013 TIME: 16:00		DATE: 30/1 TIME: 1630	
URS SAMPLERS: Bek Aggaard		DATE: 29/01/2013 TIME: 16:00		DATE: 30/1 TIME: 1630	

COMMENTS: Please contact Philippa for any queries 0413 599 478 0423 530 069

SAMPLE DETAILS				CONTAINER TYPE & PRESERVATIVE										ANALYSIS REQUIRED																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
Batch No	SAMPLE Location	SAMPLE ID	DATE	MATRIX (Solid / Liquid)	Liquid										Solid																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										

Environmental Division

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : **ES1302091**

Client : **URS AUSTRALIA PTY LTD**
 Contact : **MR ANDREW PIGGIN**
 Address : **G P O BOX 2005**
DARWIN NT, AUSTRALIA 0801

E-mail : **andrew.piggin@urs.com**
 Telephone : **+61 89802900**
 Facsimile : **+61 08 89413920**

Project : **42213719**
 Order number : **----**
 C-O-C number : **----**
 Site : **----**
 Sampler : **BA**

Laboratory : **Environmental Division Sydney**
 Contact : **Client Services**
 Address : **277-289 Woodpark Road Smithfield**
NSW Australia 2164

E-mail : **sydney@alsglobal.com**
 Telephone : **+61-2-8784 8555**
 Facsimile : **+61-2-8784 8500**

Page : **1 of 4**

Quote number : **ES2012URSNT0270 (EN/001/12)**

QC Level : **NEPM 1999 Schedule B(3) and ALS QCS3 requirement**

Dates

Date Samples Received : **30-JAN-2013**
 Client Requested Due Date : **06-FEB-2013**

Issue Date : **01-FEB-2013 17:19**
 Scheduled Reporting Date : **06-FEB-2013**

Delivery Details

Mode of Delivery : **Carrier**
 No. of coolers/boxes : **5 HARDS**
 Security Seal : **Intact.**

Temperature : **10.3°C - Ice present**
 No. of samples received : **25**
 No. of samples analysed : **24**

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 SPQCB01_29/1/13 received extra and placed on hold. Please confirm**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

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

- No sample container / preservation non-compliance exist.

Summary of Sample(s) and Requested Analysis

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

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

Matrix: SOIL

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - P-13/1 (ES) NEPM Table 5A (Sydney Lab)	SOIL - S-26 8 metals/TPH/BTEX/PAH
ES1302091-001	29-JAN-2013 15:00	SP01B_01_290113	✓	✓
ES1302091-002	29-JAN-2013 15:00	SP01B_02_290113	✓	✓
ES1302091-003	29-JAN-2013 15:00	SP01B_03_290113	✓	✓
ES1302091-004	29-JAN-2013 15:00	SP01B_04_290113	✓	✓
ES1302091-005	29-JAN-2013 15:00	SP01B_05_290113	✓	✓
ES1302091-006	29-JAN-2013 15:00	SP01B_06_290113	✓	✓
ES1302091-007	29-JAN-2013 15:00	SP01B_07_290113	✓	✓
ES1302091-008	29-JAN-2013 15:00	SP01B_08_290113	✓	✓
ES1302091-009	29-JAN-2013 15:00	SP01B_09_290113	✓	✓
ES1302091-010	29-JAN-2013 15:00	SP01B_10_290113	✓	✓
ES1302091-011	29-JAN-2013 15:00	SP01B_11_290113	✓	✓
ES1302091-012	29-JAN-2013 15:00	SP01B_12_290113	✓	✓
ES1302091-013	29-JAN-2013 15:00	SP01B_13_290113	✓	✓
ES1302091-014	29-JAN-2013 15:00	SP01B_14_290113	✓	✓
ES1302091-015	29-JAN-2013 15:00	SP01B_15_290113	✓	✓
ES1302091-016	29-JAN-2013 15:00	SP01B_16_290113	✓	✓
ES1302091-017	29-JAN-2013 15:00	SP01B_17_290113	✓	✓
ES1302091-018	29-JAN-2013 15:00	SP01B_18_290113	✓	✓
ES1302091-019	29-JAN-2013 15:00	SP01B_19_290113	✓	✓
ES1302091-020	29-JAN-2013 15:00	SP01B_20_290113	✓	✓
ES1302091-021	29-JAN-2013 15:00	DUP01_01_290113	✓	✓
ES1302091-022	29-JAN-2013 15:00	DUP01_02_290113	✓	✓
ES1302091-023	29-JAN-2013 15:00	DUP01_03_290113	✓	✓



Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) WATER No analysis requested	WATER - W-02 8 Metals	WATER - W-07 TPH/BTEX/PAH
ES1302091-024	29-JAN-2013 15:00	SPQCC01_290113		✓	✓
ES1302091-025	29-JAN-2013 15:00	SPQCB01_29/1/13	✓		

Proactive Holding Time Report

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

Email darwin@urs.com

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: ES1302091	Page	: 1 of 25
Client	: URS AUSTRALIA PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: MR ANDREW PIGGIN	Contact	: Client Services
Address	: G P O BOX 2005 DARWIN NT, AUSTRALIA 0801	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: andrew.piggin@urs.com	E-mail	: sydney@alsglobal.com
Telephone	: +61 89802900	Telephone	: +61-2-8784 8555
Facsimile	: +61 08 89413920	Facsimile	: +61-2-8784 8500
Project	: 42213719	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 30-JAN-2013
C-O-C number	: ----	Issue Date	: 07-FEB-2013
Sampler	: BA	No. of samples received	: 25
Site	: ----	No. of samples analysed	: 24
Quote number	: EN/001/12		

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.

Signatories	Position	Accreditation Category
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics Sydney Organics Sydney Organics
Raymond Commodor	Instrument Chemist	Sydney Inorganics



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				SP01B_01_290113	SP01B_02_290113	SP01B_03_290113	SP01B_04_290113	SP01B_05_290113
				29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00
Compound	CAS Number	LOR	Unit	ES1302091-001	ES1302091-002	ES1302091-003	ES1302091-004	ES1302091-005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	13.8	17.9	12.0	9.8	12.3
EG005T: Total Metals by ICP-AES								
Barium	7440-39-3	10	mg/kg	80	480	120	540	410
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Cobalt	7440-48-4	2	mg/kg	<2	2	<2	2	2
Manganese	7439-96-5	5	mg/kg	73	98	65	136	95
Vanadium	7440-62-2	5	mg/kg	60	57	68	94	128
Arsenic	7440-38-2	5	mg/kg	5	48	6	37	16
Cadmium	7440-43-9	1	mg/kg	<1	13	<1	6	2
Chromium	7440-47-3	2	mg/kg	38	28	33	66	72
Copper	7440-50-8	5	mg/kg	16	63	18	48	186
Lead	7439-92-1	5	mg/kg	30	1550	55	1020	283
Nickel	7440-02-0	2	mg/kg	4	5	4	5	4
Zinc	7440-66-6	5	mg/kg	53	3380	120	1410	359
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				SP01B_01_290113	SP01B_02_290113	SP01B_03_290113	SP01B_04_290113	SP01B_05_290113
				29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00
Compound	CAS Number	LOR	Unit	ES1302091-001	ES1302091-002	ES1302091-003	ES1302091-004	ES1302091-005
EP068A: Organochlorine Pesticides (OC) - Continued								
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				SP01B_01_290113	SP01B_02_290113	SP01B_03_290113	SP01B_04_290113	SP01B_05_290113
				29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00
Compound	CAS Number	LOR	Unit	ES1302091-001	ES1302091-002	ES1302091-003	ES1302091-004	ES1302091-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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 (WHO)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
C6 - C10 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	----	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEX								
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
EP080: BTEXN								
^ 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	%	111	106	111	109	99.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				SP01B_01_290113	SP01B_02_290113	SP01B_03_290113	SP01B_04_290113	SP01B_05_290113
				29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00
Compound	CAS Number	LOR	Unit	ES1302091-001	ES1302091-002	ES1302091-003	ES1302091-004	ES1302091-005
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	93.5	93.3	95.9	97.7	87.6
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	102	98.9	97.0	93.3	93.3
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	92.0	103	101	104	104
2-Chlorophenol-D4	93951-73-6	0.1	%	96.4	103	102	104	103
2,4,6-Tribromophenol	118-79-6	0.1	%	90.0	106	108	107	106
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	93.9	100	102	103	101
Anthracene-d10	1719-06-8	0.1	%	86.1	91.7	93.7	95.2	93.0
4-Terphenyl-d14	1718-51-0	0.1	%	88.4	94.8	95.0	96.8	94.6
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	83.4	87.2	88.1	90.5	84.3
Toluene-D8	2037-26-5	0.1	%	83.2	90.7	84.0	85.2	81.4
4-Bromofluorobenzene	460-00-4	0.1	%	82.8	91.3	88.5	80.6	75.9



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				SP01B_06_290113	SP01B_07_290113	SP01B_08_290113	SP01B_09_290113	SP01B_10_290113
				29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00
Compound	CAS Number	LOR	Unit	ES1302091-006	ES1302091-007	ES1302091-008	ES1302091-009	ES1302091-010
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	17.9	13.8	13.8	15.7	15.3
EG005T: Total Metals by ICP-AES								
Barium	7440-39-3	10	mg/kg	100	90	60	90	20
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Cobalt	7440-48-4	2	mg/kg	<2	<2	<2	<2	<2
Manganese	7439-96-5	5	mg/kg	51	85	79	84	79
Vanadium	7440-62-2	5	mg/kg	73	101	78	58	45
Arsenic	7440-38-2	5	mg/kg	8	8	9	6	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	37	68	48	42	23
Copper	7440-50-8	5	mg/kg	20	13	29	9	24
Lead	7439-92-1	5	mg/kg	72	31	40	11	8
Nickel	7440-02-0	2	mg/kg	4	4	5	3	5
Zinc	7440-66-6	5	mg/kg	74	54	58	19	15
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				SP01B_06_290113	SP01B_07_290113	SP01B_08_290113	SP01B_09_290113	SP01B_10_290113
				29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00
Compound	CAS Number	LOR	Unit	ES1302091-006	ES1302091-007	ES1302091-008	ES1302091-009	ES1302091-010
EP068A: Organochlorine Pesticides (OC) - Continued								
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				SP01B_06_290113	SP01B_07_290113	SP01B_08_290113	SP01B_09_290113	SP01B_10_290113
				29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00
Compound	CAS Number	LOR	Unit	ES1302091-006	ES1302091-007	ES1302091-008	ES1302091-009	ES1302091-010
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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 (WHO)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
C6 - C10 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	----	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEX								
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
EP080: BTEXN								
^ 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	%	110	117	123	112	125



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				SP01B_06_290113	SP01B_07_290113	SP01B_08_290113	SP01B_09_290113	SP01B_10_290113
				29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00
Compound	CAS Number	LOR	Unit	ES1302091-006	ES1302091-007	ES1302091-008	ES1302091-009	ES1302091-010
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	95.6	101	102	98.8	108
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	98.2	97.9	104	99.3	100
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	98.1	107	109	106	102
2-Chlorophenol-D4	93951-73-6	0.1	%	97.6	104	108	103	100
2,4,6-Tribromophenol	118-79-6	0.1	%	99.3	103	108	105	102
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	96.0	104	105	102	99.2
Anthracene-d10	1719-06-8	0.1	%	88.5	94.8	95.5	93.3	92.5
4-Terphenyl-d14	1718-51-0	0.1	%	89.9	96.3	96.7	95.1	94.6
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	84.9	88.0	90.2	101	95.6
Toluene-D8	2037-26-5	0.1	%	85.7	88.6	88.3	92.4	89.1
4-Bromofluorobenzene	460-00-4	0.1	%	78.3	80.9	87.2	89.6	80.8



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				SP01B_11_290113	SP01B_12_290113	SP01B_13_290113	SP01B_14_290113	SP01B_15_290113
				29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00
Compound	CAS Number	LOR	Unit	ES1302091-011	ES1302091-012	ES1302091-013	ES1302091-014	ES1302091-015
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	13.6	15.7	15.9	14.6	15.2
EG005T: Total Metals by ICP-AES								
Barium	7440-39-3	10	mg/kg	250	50	10	130	220
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Cobalt	7440-48-4	2	mg/kg	<2	<2	<2	<2	<2
Manganese	7439-96-5	5	mg/kg	65	100	91	106	98
Vanadium	7440-62-2	5	mg/kg	48	192	178	79	64
Arsenic	7440-38-2	5	mg/kg	<5	8	7	6	7
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	1
Chromium	7440-47-3	2	mg/kg	33	84	74	43	36
Copper	7440-50-8	5	mg/kg	14	5	<5	20	28
Lead	7439-92-1	5	mg/kg	17	12	11	15	105
Nickel	7440-02-0	2	mg/kg	5	<2	<2	5	6
Zinc	7440-66-6	5	mg/kg	37	8	<5	26	175
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				SP01B_11_290113	SP01B_12_290113	SP01B_13_290113	SP01B_14_290113	SP01B_15_290113
				29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00
Compound	CAS Number	LOR	Unit	ES1302091-011	ES1302091-012	ES1302091-013	ES1302091-014	ES1302091-015
EP068A: Organochlorine Pesticides (OC) - Continued								
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				SP01B_11_290113	SP01B_12_290113	SP01B_13_290113	SP01B_14_290113	SP01B_15_290113
				29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00
Compound	CAS Number	LOR	Unit	ES1302091-011	ES1302091-012	ES1302091-013	ES1302091-014	ES1302091-015
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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 (WHO)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
C6 - C10 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	----	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEX								
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
EP080: BTEXN								
^ 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	%	119	113	100	124	109



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				SP01B_11_290113	SP01B_12_290113	SP01B_13_290113	SP01B_14_290113	SP01B_15_290113
				29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00
Compound	CAS Number	LOR	Unit	ES1302091-011	ES1302091-012	ES1302091-013	ES1302091-014	ES1302091-015
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	95.2	97.4	85.4	98.4	89.6
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	104	110	92.0	107	88.9
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	104	102	100	100	99.8
2-Chlorophenol-D4	93951-73-6	0.1	%	103	102	100	99.3	99.4
2,4,6-Tribromophenol	118-79-6	0.1	%	101	103	102	96.3	79.9
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	100	102	99.6	97.0	96.4
Anthracene-d10	1719-06-8	0.1	%	92.4	94.4	92.5	89.1	87.7
4-Terphenyl-d14	1718-51-0	0.1	%	94.5	96.4	95.0	91.7	90.5
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	94.8	94.7	97.5	96.7	89.9
Toluene-D8	2037-26-5	0.1	%	86.3	91.5	97.4	76.9	89.6
4-Bromofluorobenzene	460-00-4	0.1	%	82.5	86.0	106	83.7	90.2



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				SP01B_16_290113	SP01B_17_290113	SP01B_18_290113	SP01B_19_290113	SP01B_20_290113
				29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00
Compound	CAS Number	LOR	Unit	ES1302091-016	ES1302091-017	ES1302091-018	ES1302091-019	ES1302091-020
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	14.4	12.2	15.1	16.8	13.7
EG005T: Total Metals by ICP-AES								
Barium	7440-39-3	10	mg/kg	90	40	70	100	150
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Cobalt	7440-48-4	2	mg/kg	<2	<2	<2	<2	<2
Manganese	7439-96-5	5	mg/kg	91	60	54	68	60
Vanadium	7440-62-2	5	mg/kg	49	39	72	78	58
Arsenic	7440-38-2	5	mg/kg	<5	<5	6	8	12
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	1
Chromium	7440-47-3	2	mg/kg	30	21	47	34	31
Copper	7440-50-8	5	mg/kg	13	14	12	20	22
Lead	7439-92-1	5	mg/kg	34	38	17	67	169
Nickel	7440-02-0	2	mg/kg	5	4	3	4	4
Zinc	7440-66-6	5	mg/kg	89	76	27	172	274
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				SP01B_16_290113	SP01B_17_290113	SP01B_18_290113	SP01B_19_290113	SP01B_20_290113
				29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00
Compound	CAS Number	LOR	Unit	ES1302091-016	ES1302091-017	ES1302091-018	ES1302091-019	ES1302091-020
EP068A: Organochlorine Pesticides (OC) - Continued								
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
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	0.6	<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	0.7	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	0.7	<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



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				SP01B_16_290113	SP01B_17_290113	SP01B_18_290113	SP01B_19_290113	SP01B_20_290113
				29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00
Compound	CAS Number	LOR	Unit	ES1302091-016	ES1302091-017	ES1302091-018	ES1302091-019	ES1302091-020
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	2.0	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (WHO)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
C6 - C10 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	----	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEX								
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
EP080: BTEXN								
^ 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	%	122	107	106	117	110



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				SP01B_16_290113	SP01B_17_290113	SP01B_18_290113	SP01B_19_290113	SP01B_20_290113
				29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00
Compound	CAS Number	LOR	Unit	ES1302091-016	ES1302091-017	ES1302091-018	ES1302091-019	ES1302091-020
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	98.3	91.8	89.7	100	94.5
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	96.2	87.9	85.8	95.2	94.6
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	100	99.0	101	95.3	95.9
2-Chlorophenol-D4	93951-73-6	0.1	%	100	97.9	99.5	96.8	96.3
2,4,6-Tribromophenol	118-79-6	0.1	%	97.1	93.1	96.6	93.0	93.3
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	98.2	95.8	98.0	94.3	94.6
Anthracene-d10	1719-06-8	0.1	%	90.5	88.1	91.4	87.4	88.1
4-Terphenyl-d14	1718-51-0	0.1	%	92.3	89.7	92.8	88.8	90.8
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	90.0	91.7	84.7	90.5	89.9
Toluene-D8	2037-26-5	0.1	%	80.2	89.6	81.8	81.5	96.4
4-Bromofluorobenzene	460-00-4	0.1	%	78.3	90.9	83.0	77.4	86.4



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				DUP01_01_290113	DUP01_02_290113	DUP01_03_290113	----	----
				29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1302091-021	ES1302091-022	ES1302091-023	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	10.6	14.2	11.5	----	----
EG005T: Total Metals by ICP-AES								
Barium	7440-39-3	10	mg/kg	400	120	90	----	----
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	----	----
Cobalt	7440-48-4	2	mg/kg	<2	2	<2	----	----
Manganese	7439-96-5	5	mg/kg	88	74	84	----	----
Vanadium	7440-62-2	5	mg/kg	66	80	72	----	----
Arsenic	7440-38-2	5	mg/kg	53	9	<5	----	----
Cadmium	7440-43-9	1	mg/kg	17	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	35	38	45	----	----
Copper	7440-50-8	5	mg/kg	62	21	10	----	----
Lead	7439-92-1	5	mg/kg	1520	64	17	----	----
Nickel	7440-02-0	2	mg/kg	4	5	4	----	----
Zinc	7440-66-6	5	mg/kg	3170	111	24	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				DUP01_01_290113	DUP01_02_290113	DUP01_03_290113	----	----
				29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1302091-021	ES1302091-022	ES1302091-023	----	----
EP068A: Organochlorine Pesticides (OC) - Continued								
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				DUP01_01_290113	DUP01_02_290113	DUP01_03_290113	----	----
				29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1302091-021	ES1302091-022	ES1302091-023	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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 (WHO)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
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 2010 Draft								
C6 - C10 Fraction	----	10	mg/kg	<10	<10	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	----	10	mg/kg	<10	<10	<10	----	----
>C10 - C16 Fraction	----	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: BTEX								
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	----	----
EP080: BTEXN								
^ 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	%	94.1	103	109	----	----



Analytical Results

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

Client sample ID

Client sampling date / time

				DUP01_01_290113	DUP01_02_290113	DUP01_03_290113	----	----
				29-JAN-2013 15:00	29-JAN-2013 15:00	29-JAN-2013 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1302091-021	ES1302091-022	ES1302091-023	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	107	121	123	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	73.5	78.6	69.8	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	92.8	86.8	83.4	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	99.3	94.2	90.4	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	99.6	94.1	96.0	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	99.3	93.9	95.4	----	----
Anthracene-d10	1719-06-8	0.1	%	100	96.2	98.4	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	89.4	86.1	88.1	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	84.3	116	96.9	----	----
Toluene-D8	2037-26-5	0.1	%	80.8	114	91.5	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	72.7	108	84.4	----	----



Analytical Results

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

Client sample ID

SPQCC01_290113

Client sampling date / time

29-JAN-2013 15:00

Compound	CAS Number	LOR	Unit	ES1302091-024	----	----	----	----
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	----	----	----	----
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 (WHO)	----	0.5	µg/L	<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L	330	----	----	----	----
C15 - C28 Fraction	----	100	µg/L	520	----	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	----	----	----	----



Analytical Results

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

Client sample ID

SPQCC01_290113

Client sampling date / time

29-JAN-2013 15:00

Compound	CAS Number	LOR	Unit	ES1302091-024	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued								
^ C10 - C36 Fraction (sum)	----	50	µg/L	850	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
C6 - C10 Fraction	----	20	µg/L	<20	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	----	20	µg/L	<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L	480	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L	340	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	820	----	----	----	----
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	%	14.1	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	33.5	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	37.6	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	37.7	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	57.0	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	70.1	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	121	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	97.9	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	108	----	----	----	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	29.4	145
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	145
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	32	142
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	127
2-Chlorophenol-D4	93951-73-6	64	126
2,4,6-Tribromophenol	118-79-6	36	136
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	64	130
Anthracene-d10	1719-06-8	69	135
4-Terphenyl-d14	1718-51-0	64	136
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	15.9	102
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20.4	112
Anthracene-d10	1719-06-8	29.6	118
4-Terphenyl-d14	1718-51-0	21.5	126
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

Environmental Division

QUALITY CONTROL REPORT

Work Order	: ES1302091	Page	: 1 of 26
Client	: URS AUSTRALIA PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: MR ANDREW PIGGIN	Contact	: Client Services
Address	: G P O BOX 2005 DARWIN NT, AUSTRALIA 0801	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: andrew.piggin@urs.com	E-mail	: sydney@alsglobal.com
Telephone	: +61 89802900	Telephone	: +61-2-8784 8555
Facsimile	: +61 08 89413920	Facsimile	: +61-2-8784 8500
Project	: 42213719	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 30-JAN-2013
C-O-C number	: ----	Issue Date	: 07-FEB-2013
Sampler	: BA	No. of samples received	: 25
Order number	: ----	No. of samples analysed	: 24
Quote number	: EN/001/12		

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.

Signatories	Position	Accreditation Category
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
		Sydney Organics
		Sydney Organics
		Sydney Inorganics
Raymond Commodor	Instrument Chemist	Sydney Inorganics



Laboratory Duplicate (DUP) Report

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

Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA055: Moisture Content (QC Lot: 2709762)									
ES1301856-003	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	9.2	9.6	4.8	No Limit
ES1301856-014	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	11.1	10.8	3.0	0% - 50%
EA055: Moisture Content (QC Lot: 2709763)									
ES1302091-009	SP01B_09_290113	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	15.7	16.3	3.8	0% - 50%
ES1302091-020	SP01B_20_290113	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	13.7	15.1	9.7	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 2714969)									
ES1302091-001	SP01B_01_290113	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	80	90	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	38	28	29.2	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	3	41.2	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	4	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	16	15	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	30	30	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	73	93	24.4	0% - 50%
		EG005T: Vanadium	7440-62-2	5	mg/kg	60	53	12.2	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	53	53	0.0	0% - 50%
ES1302091-007	SP01B_07_290113	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	90	100	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	68	62	9.6	0% - 20%
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	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	8	5	36.4	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	13	17	29.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	31	25	22.4	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	85	74	13.7	0% - 50%
		EG005T: Vanadium	7440-62-2	5	mg/kg	101	85	17.0	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	54	51	4.7	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 2714971)									
ES1302091-017	SP01B_17_290113	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	40	40	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	21	28	29.0	0% - 50%
		EG005T: Cobalt	7440-48-4	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 (%)
EG005T: Total Metals by ICP-AES (QC Lot: 2714971) - continued									
ES1302091-017	SP01B_17_290113	EG005T: Nickel	7440-02-0	2	mg/kg	4	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	14	16	10.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	38	31	19.9	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	60	64	7.2	0% - 50%
		EG005T: Vanadium	7440-62-2	5	mg/kg	39	58	39.0	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	76	61	22.5	0% - 50%
ES1302342-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<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: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	8	9	20.2	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2714970)									
ES1302091-001	SP01B_01_290113	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1302091-007	SP01B_07_290113	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: 2714972)									
ES1302091-017	SP01B_17_290113	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 2710298)									
ES1301683-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
ES1302091-003	SP01B_03_290113	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 2710299)									
ES1302091-014	SP01B_14_290113	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1302091-023	DUP01_03_290113	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2710555)									
ES1302091-001	SP01B_01_290113	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1302091-011	SP01B_11_290113	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2712894)									
ES1302091-021	DUP01_01_290113	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2710554)									
ES1302091-001	SP01B_01_290113	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	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 (%)		
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2710554) - continued											
ES1302091-001	SP01B_01_290113	EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: 4,4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: 4,4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: 4,4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
		ES1302091-011	SP01B_11_290113	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
				EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP068: beta-BHC	319-85-7			0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
EP068: gamma-BHC	58-89-9			0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
EP068: delta-BHC	319-86-8			0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
EP068: Heptachlor	76-44-8			0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
EP068: Aldrin	309-00-2			0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
EP068: Heptachlor epoxide	1024-57-3			0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
EP068: trans-Chlordane	5103-74-2			0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
EP068: alpha-Endosulfan	959-98-8			0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
EP068: cis-Chlordane	5103-71-9			0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
EP068: Dieldrin	60-57-1			0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
EP068: 4,4`-DDE	72-55-9			0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
EP068: Endrin	72-20-8			0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
EP068: beta-Endosulfan	33213-65-9			0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
EP068: 4,4`-DDD	72-54-8			0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
EP068: Endrin aldehyde	7421-93-4			0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
EP068: Endosulfan sulfate	1031-07-8			0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
EP068: Endrin ketone	53494-70-5			0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
EP068: 4,4`-DDT	50-29-3			0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit				
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2712893)											



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 (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2712893) - continued									
ES1302091-021	DUP01_01_290113	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
ES1302091-023	DUP01_03_290113	EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDT	50-29-3	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 (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2712893) - continued									
ES1302091-023	DUP01_03_290113	EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 2710569)									
ES1302091-002	SP01B_02_290113	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
ES1302091-011	SP01B_11_290113	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)A: Phenolic Compounds (QC Lot: 2711040)									
ES1302022-001	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
ES1302022-010	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 2711040) - continued									
ES1302022-010	Anonymous	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: 2710569)									
ES1302091-002	SP01B_02_290113	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 (WHO)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1302091-011	SP01B_11_290113	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



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: 2710569) - continued									
ES1302091-011	SP01B_11_290113	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 (WHO)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2711040)									
ES1302022-001	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 (WHO)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		ES1302022-010	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	13.3	12.2
EP075(SIM): Acenaphthylene	208-96-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Acenaphthene	83-32-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Fluorene	86-73-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Phenanthrene	85-01-8			0.5	mg/kg	0.7	0.7	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



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: 2711040) - continued									
ES1302022-010	Anonymous	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	14.0	12.9	8.2	0% - 20%
		EP075(SIM): Benzo(a)pyrene TEQ (WHO)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2709753)									
ES1302091-001	SP01B_01_290113	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1302091-011	SP01B_11_290113	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2710074)									
ES1302030-011	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1302089-011	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2710568)									
ES1302091-002	SP01B_02_290113	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
ES1302091-011	SP01B_11_290113	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: 2711039)									
ES1302022-001	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
ES1302022-010	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	240	200	16.1	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	1570	1250	# 23.0	0% - 20%
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2709753)									
ES1302091-001	SP01B_01_290113	EP080: C6 - C10 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1302091-011	SP01B_11_290113	EP080: C6 - C10 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2710074)									
ES1302030-011	Anonymous	EP080: C6 - C10 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1302089-011	Anonymous	EP080: C6 - C10 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2710568)									
ES1302091-002	SP01B_02_290113	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	----	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 2010 Draft (QC Lot: 2710568) - continued									
ES1302091-011	SP01B_11_290113	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	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2711039)									
ES1302022-001	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	----	50	mg/kg	<50	<50	0.0	No Limit
ES1302022-010	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	120	<100	17.4	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	1220	1000	19.7	0% - 20%
EP080: BTEXN (QC Lot: 2709753)									
ES1302091-001	SP01B_01_290113	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
ES1302091-011	SP01B_11_290113	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: 2710074)									
ES1302030-011	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
		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
ES1302089-011	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
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 2714079)									
ES1302469-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: 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
ES1302469-005	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: 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: 2714078)									
ES1302079-001	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: 2709761)									
EN1300389-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1302090-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2709761)									
EN1300389-001	Anonymous	EP080: C6 - C10 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1302090-005	Anonymous	EP080: C6 - C10 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 2709761)									
EN1300389-001	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
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1302090-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

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.

Method Blank (MB)
Report

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG005T: Total Metals by ICP-AES (QCLot: 2714969)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	108	84	128
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	102	83	125
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	114	88	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	101	79	119
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	102	70	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	109	83	127
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	106	83	127
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	108	81	117
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	105	83	121
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	108	79	127
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	109	89	131
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	112	78	130
EG005T: Total Metals by ICP-AES (QCLot: 2714971)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	104	84	128
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	102	83	125
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	113	88	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	102	79	119
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	100	70	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	106	83	127
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	107	83	127
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	116	81	117
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	103	83	121
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	107	79	127
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	108	89	131
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	107	78	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2714970)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	89.2	72	114
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2714972)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	88.5	72	114
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 2710298)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	93.7	71	123
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 2710299)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	91.5	71	123
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2710555)								



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2710555) - continued								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	90.0	57.4	117
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2712894)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	90.0	57.4	117
EP068A: Organochlorine Pesticides (OC) (QCLot: 2710554)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	91.3	60.8	116
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	90.8	59.4	115
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	83.4	59.8	117
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	100	59.8	118
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.2	65.8	114
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.6	65.6	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	93.8	67	113
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	65.6	113
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	95.5	60.7	113
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	65.8	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.7	57.3	120
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	84.3	67.4	116
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	67.5	114
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	100	63	121
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	90.7	66.1	117
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	93.5	65.3	116
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	110	57.3	115
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	104	63.6	119
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	105	58.4	127
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	104	63.6	117
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	108	50.4	132
EP068A: Organochlorine Pesticides (OC) (QCLot: 2712893)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	98.9	60.8	116
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	97.8	59.4	115
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	95.6	59.8	117
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.1	59.8	118
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.9	65.8	114
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	65.6	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	100	67	113
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	97.4	65.6	113
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	102	60.7	113
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	100	65.8	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	104	57.3	120
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	90.9	67.4	116
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	102	67.5	114



Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP068A: Organochlorine Pesticides (OC) (QCLot: 2712893) - continued								
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.1	63	121
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	101	66.1	117
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	109	65.3	116
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	82.0	57.3	115
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	65.4	63.6	119
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	84.3	58.4	127
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.0	63.6	117
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	79.5	50.4	132
EP075(SIM)A: Phenolic Compounds (QCLot: 2710569)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	95.3	73.9	115
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	101	80.2	115
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	107	76.8	114
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	106	72	119
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	73.7	60.3	117
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	94.6	74.5	119
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	96.6	71.6	113
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	100	74.8	115
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	91.8	76.4	114
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	92.0	62.2	115
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	87.5	68.9	112
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	28.4	1.23	91.6
EP075(SIM)A: Phenolic Compounds (QCLot: 2711040)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	96.0	73.9	115
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	81.9	80.2	115
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	92.8	76.8	114
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	94.0	72	119
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	85.4	60.3	117
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	102	74.5	119
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	99.2	71.6	113
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	103	74.8	115
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	94.5	76.4	114
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	82.7	62.2	115
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	89.0	68.9	112
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	35.9	1.23	91.6
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2710569)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	112	81.9	113
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	106	79.6	113
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	107	81.5	112
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	109	79.9	112

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2710569) - continued								
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	111	79.4	114
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	108	81.1	112
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	110	78.8	113
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	110	78.9	113
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	107	77.2	112
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	105	79.8	114
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	107	71.8	118
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	109	74.2	117
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	107	76.4	113
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	88.0	71	113
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	92.5	71.7	113
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	81.9	72.4	114
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2711040)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	101	81.9	113
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	102	79.6	113
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	107	81.5	112
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	106	79.9	112
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	109	79.4	114
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	106	81.1	112
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	100	78.8	113
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	107	78.9	113
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	84.1	77.2	112
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	104	79.8	114
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	91.1	71.8	118
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	100	74.2	117
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	96.8	76.4	113
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	87.9	71.7	113
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	82.4	72.4	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2709753)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	89.1	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2710074)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	111	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2710568)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	105	59	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	110	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	108	63	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2711039)								



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result			Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2711039) - continued								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	114	59	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	118	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	110	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2709753)								
EP080: C6 - C10 Fraction	----	10	mg/kg	<10	31 mg/kg	88.8	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2710074)								
EP080: C6 - C10 Fraction	----	10	mg/kg	<10	31 mg/kg	99.0	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2710568)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	250 mg/kg	106	59	131
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	109	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
		50	mg/kg	----	150 mg/kg	111	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2711039)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	250 mg/kg	116	59	131
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	117	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
		50	mg/kg	----	150 mg/kg	80.0	63	131
EP080: BTEXN (QCLot: 2709753)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	78.9	62	120
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	78.3	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	71.1	58	118
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	74.7	60	120
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	80.4	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	76.3	62	138
EP080: BTEXN (QCLot: 2710074)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	85.4	62	120
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	107	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	100	58	118
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	102	60	120
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	105	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	79.2	62	138
Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result			Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2714079)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	107	80	118



Sub-Matrix: **WATER**

Method: Compound				Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
							Low	High
CAS Number	LOR	Unit						
EG020F: Dissolved Metals by ICP-MS (QCLot: 2714079) - continued								
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.2	82	114
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	99.7	80	114
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.5	79	115
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.3	81	113
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	101	80	116
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	99.0	75	121
EG035F: Dissolved Mercury by FIMS (QCLot: 2714078)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	99.4	72	120
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2712056)								
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	94.2	58.6	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	77.0	63.6	114
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	84.8	62.2	113
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	97.0	63.9	115
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	97.9	62.6	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	95.4	64.3	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	100	63.6	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	99.1	63.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	97.2	64.1	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	98.3	62.5	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	98.3	61.7	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	101	61.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	91.3	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	92.2	59.9	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	95.0	61.2	117
		1	µg/L	<1.0	----	----	----	----



Sub-Matrix: **WATER**

Method: Compound				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
CAS Number	LOR	Unit	Result					
EP075(SIM): Polynuclear Aromatic Hydrocarbons (QCLot: 2712056) - continued								
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	89.4	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: 2709761)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	83.6	75	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2712055)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	96.3	58.9	131
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	99.6	73.9	138
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	96.4	62.7	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2709761)								
EP080: C6 - C10 Fraction	----	20	µg/L	<20	310 µg/L	86.4	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2712055)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	2500 µg/L	93.8	58.9	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	97.6	73.9	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
		50	µg/L	----	1500 µg/L	102	62.7	131
EP080: BTEXN (QCLot: 2709761)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	102	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	84.4	66	132
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	93.2	70	120
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	91.6	69	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	93.6	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	93.7	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				Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%)	Recovery Limits (%)	
					MS	Low	High
Client sample ID	Method: Compound	CAS Number					
EG005T: Total Metals by ICP-AES (QCLot: 2714969)							
ES1302091-001	SP01B_01_290113	EG005T: Arsenic	7440-38-2	50 mg/kg	95.7	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	98.2	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	110	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	123	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	125	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: 2714969) - continued							
ES1302091-001	SP01B_01_290113	EG005T: Nickel	7440-02-0	50 mg/kg	97.1	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	109	70	130
EG005T: Total Metals by ICP-AES (QCLot: 2714971)							
ES1302091-017	SP01B_17_290113	EG005T: Arsenic	7440-38-2	50 mg/kg	90.8	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	96.1	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	108	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	122	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	119	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	95.7	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	113	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2714970)							
ES1302091-001	SP01B_01_290113	EG035T: Mercury	7439-97-6	5 mg/kg	98.7	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2714972)							
ES1302091-017	SP01B_17_290113	EG035T: Mercury	7439-97-6	5 mg/kg	105	70	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 2710298)							
ES1301683-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	86.6	70	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 2710299)							
ES1302091-014	SP01B_14_290113	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	77.3	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2710555)							
ES1302091-001	SP01B_01_290113	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	99.0	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2712894)							
ES1302091-021	DUP01_01_290113	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	87.0	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2710554)							
ES1302091-001	SP01B_01_290113	EP068: gamma-BHC	58-89-9	0.5 mg/kg	106	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	80.3	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	101	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	91.6	70	130
		EP068: Endrin	72-20-8	2 mg/kg	82.9	70	130
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	96.2	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2712893)							
ES1302091-021	DUP01_01_290113	EP068: gamma-BHC	58-89-9	0.5 mg/kg	98.8	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	89.5	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	104	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	87.7	70	130
		EP068: Endrin	72-20-8	2 mg/kg	87.3	70	130
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	81.2	70	130



Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 2710569)							
ES1302091-002	SP01B_02_290113	EP075(SIM): Phenol	108-95-2	10 mg/kg	105	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	105	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	88.0	60	130
		EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	10 mg/kg	102	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	72.2	20	130
EP075(SIM)A: Phenolic Compounds (QCLot: 2711040)							
ES1302022-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	83.8	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	83.4	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	78.6	60	130
		EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	10 mg/kg	94.6	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	60.2	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2710569)							
ES1302091-002	SP01B_02_290113	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	111	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	118	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2711040)							
ES1302022-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	109	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	110	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2709753)							
ES1302091-001	SP01B_01_290113	EP080: C6 - C9 Fraction	----	32.5 mg/kg	118	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2710074)							
ES1302030-011	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	122	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2710568)							
ES1302091-002	SP01B_02_290113	EP071: C10 - C14 Fraction	----	640 mg/kg	93.6	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	105	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	82.1	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2711039)							
ES1302022-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	91.9	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	87.4	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	72.6	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2709753)							
ES1302091-001	SP01B_01_290113	EP080: C6 - C10 Fraction	----	37.5 mg/kg	118	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2710074)							
ES1302030-011	Anonymous	EP080: C6 - C10 Fraction	----	37.5 mg/kg	107	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2710568)							
ES1302091-002	SP01B_02_290113	EP071: >C10 - C16 Fraction	----	850 mg/kg	116	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	95.1	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 2010 Draft (QCLot: 2710568) - continued							
ES1302091-002	SP01B_02_290113	EP071: >C34 - C40 Fraction	----	2400 mg/kg	52.6	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2711039)							
ES1302022-001	Anonymous	EP071: >C10 - C16 Fraction	----	850 mg/kg	90.2	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	71.1	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	57.5	52	132
EP080: BTEXN (QCLot: 2709753)							
ES1302091-001	SP01B_01_290113	EP080: Benzene	71-43-2	2.5 mg/kg	100	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	105	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	110	70	130
	EP080: Naphthalene	91-20-3	2.5 mg/kg	105	70	130	
EP080: BTEXN (QCLot: 2710074)							
ES1302030-011	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	94.8	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	111	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	109	70	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	112	70	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	115	70	130
	EP080: Naphthalene	91-20-3	2.5 mg/kg	92.4	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
EG020F: Dissolved Metals by ICP-MS (QCLot: 2714079)							
ES1302469-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	98.2	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	92.2	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	96.8	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	95.3	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	101	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	98.4	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 2714078)							
ES1302091-024	SPQCC01_290113	EG035F: Mercury	7439-97-6	0.0100 mg/L	103	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2709761)							
EN1300389-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	117	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2709761)							



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2709761) - continued							
EN1300389-001	Anonymous	EP080: C6 - C10 Fraction	----	375 µg/L	112	70	130
EP080: BTEXN (QCLot: 2709761)							
EN1300389-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	100	70	130
		EP080: Toluene	108-88-3	25 µg/L	104	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	90.4	70	130
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	94.3	70	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	25 µg/L	97.4	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	97.2	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: 2709753)										
ES1302091-001	SP01B_01_290113	EP080: C6 - C9 Fraction	----	32.5 mg/kg	118	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2709753)										
ES1302091-001	SP01B_01_290113	EP080: C6 - C10 Fraction	----	37.5 mg/kg	118	----	70	130	----	----
EP080: BTEXN (QCLot: 2709753)										
ES1302091-001	SP01B_01_290113	EP080: Benzene	71-43-2	2.5 mg/kg	100	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	105	----	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	110	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	105	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2710074)										
ES1302030-011	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	122	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2710074)										
ES1302030-011	Anonymous	EP080: C6 - C10 Fraction	----	37.5 mg/kg	107	----	70	130	----	----
EP080: BTEXN (QCLot: 2710074)										
ES1302030-011	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	94.8	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	111	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	109	----	70	130	----	----



Sub-Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number							
EP080: BTEXN (QCLot: 2710074) - continued										
ES1302030-011	Anonymous	EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	112	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	115	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	92.4	----	70	130	----	----
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 2710298)										
ES1301683-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	86.6	----	70	130	----	----
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 2710299)										
ES1302091-014	SP01B_14_290113	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	77.3	----	70	130	----	----
EP068A: Organochlorine Pesticides (OC) (QCLot: 2710554)										
ES1302091-001	SP01B_01_290113	EP068: gamma-BHC	58-89-9	0.5 mg/kg	106	----	70	130	----	----
		EP068: Heptachlor	76-44-8	0.5 mg/kg	80.3	----	70	130	----	----
		EP068: Aldrin	309-00-2	0.5 mg/kg	101	----	70	130	----	----
		EP068: Dieldrin	60-57-1	0.5 mg/kg	91.6	----	70	130	----	----
		EP068: Endrin	72-20-8	2 mg/kg	82.9	----	70	130	----	----
		EP068: 4,4`-DDT	50-29-3	2 mg/kg	96.2	----	70	130	----	----
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2710555)										
ES1302091-001	SP01B_01_290113	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	99.0	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2710568)										
ES1302091-002	SP01B_02_290113	EP071: C10 - C14 Fraction	----	640 mg/kg	93.6	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	105	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	82.1	----	52	132	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2710568)										
ES1302091-002	SP01B_02_290113	EP071: >C10 - C16 Fraction	----	850 mg/kg	116	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	95.1	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	52.6	----	52	132	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 2710569)										
ES1302091-002	SP01B_02_290113	EP075(SIM): Phenol	108-95-2	10 mg/kg	105	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	105	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	88.0	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	10 mg/kg	102	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	72.2	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2710569)										
ES1302091-002	SP01B_02_290113	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	111	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	118	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2711039)										
ES1302022-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	91.9	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	87.4	----	53	131	----	----



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: 2711039) - continued										
ES1302022-001	Anonymous	EP071: C29 - C36 Fraction	----	2860 mg/kg	72.6	----	52	132	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2711039)										
ES1302022-001	Anonymous	EP071: >C10 - C16 Fraction	----	850 mg/kg	90.2	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	71.1	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	57.5	----	52	132	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 2711040)										
ES1302022-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	83.8	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	83.4	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	78.6	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	10 mg/kg	94.6	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	60.2	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2711040)										
ES1302022-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	109	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	110	----	70	130	----	----
EP068A: Organochlorine Pesticides (OC) (QCLot: 2712893)										
ES1302091-021	DUP01_01_290113	EP068: gamma-BHC	58-89-9	0.5 mg/kg	98.8	----	70	130	----	----
		EP068: Heptachlor	76-44-8	0.5 mg/kg	89.5	----	70	130	----	----
		EP068: Aldrin	309-00-2	0.5 mg/kg	104	----	70	130	----	----
		EP068: Dieldrin	60-57-1	0.5 mg/kg	87.7	----	70	130	----	----
		EP068: Endrin	72-20-8	2 mg/kg	87.3	----	70	130	----	----
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	81.2	----	70	130	----	----
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2712894)										
ES1302091-021	DUP01_01_290113	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	87.0	----	70	130	----	----
EG005T: Total Metals by ICP-AES (QCLot: 2714969)										
ES1302091-001	SP01B_01_290113	EG005T: Arsenic	7440-38-2	50 mg/kg	95.7	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	98.2	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	110	----	70	130	----	----
		EG005T: Copper	7440-50-8	250 mg/kg	123	----	70	130	----	----
		EG005T: Lead	7439-92-1	250 mg/kg	125	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	97.1	----	70	130	----	----
		EG005T: Zinc	7440-66-6	250 mg/kg	109	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2714970)										
ES1302091-001	SP01B_01_290113	EG035T: Mercury	7439-97-6	5 mg/kg	98.7	----	70	130	----	----
EG005T: Total Metals by ICP-AES (QCLot: 2714971)										
ES1302091-017	SP01B_17_290113	EG005T: Arsenic	7440-38-2	50 mg/kg	90.8	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	96.1	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	108	----	70	130	----	----
		EG005T: Copper	7440-50-8	250 mg/kg	122	----	70	130	----	----

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 Work Order : ES1302091
 Client : URS AUSTRALIA PTY LTD
 Project : 42213719



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								
EG005T: Total Metals by ICP-AES (QCLot: 2714971) - continued											
ES1302091-017	SP01B_17_290113	EG005T: Lead	7439-92-1	250 mg/kg	119	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	95.7	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	250 mg/kg	113	----	70	130	----	----	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2714972)											
ES1302091-017	SP01B_17_290113	EG035T: Mercury	7439-97-6	5 mg/kg	105	----	70	130	----	----	

Sub-Matrix: WATER					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)
					Concentration	MS	MSD	Low	High	Value Control Limit
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2709761)										
EN1300389-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	117	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2709761)										
EN1300389-001	Anonymous	EP080: C6 - C10 Fraction	----	375 µg/L	112	----	70	130	----	----
EP080: BTEXN (QCLot: 2709761)										
EN1300389-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	100	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	104	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	90.4	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	94.3	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	25 µg/L	97.4	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	97.2	----	70	130	----	----
EG035F: Dissolved Mercury by FIMS (QCLot: 2714078)										
ES1302091-024	SPQCC01_290113	EG035F: Mercury	7439-97-6	0.0100 mg/L	103	----	70	130	----	----
EG020F: Dissolved Metals by ICP-MS (QCLot: 2714079)										
ES1302469-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	98.2	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	92.2	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	96.8	----	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	95.3	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	101	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	98.4	----	70	130	----	----

Environmental Division

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1302091	Page	: 1 of 12
Client	: URS AUSTRALIA PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: MR ANDREW PIGGIN	Contact	: Client Services
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Facsimile	: +61 08 89413920	Facsimile	: +61-2-8784 8500
Project	: 42213719	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 30-JAN-2013
C-O-C number	: ----	Issue Date	: 07-FEB-2013
Sampler	: BA	No. of samples received	: 25
Order number	: ----	No. of samples analysed	: 24
Quote number	: EN/001/12		

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

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

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)		29-JAN-2013	05-FEB-2013	26-FEB-2013	✓	06-FEB-2013	26-FEB-2013	✓
SP01B_01_290113,	SP01B_02_290113,							
SP01B_03_290113,	SP01B_04_290113,							
SP01B_05_290113,	SP01B_06_290113,							
SP01B_07_290113,	SP01B_08_290113,							
SP01B_09_290113,	SP01B_10_290113,							
SP01B_11_290113,	SP01B_12_290113,							
SP01B_13_290113,	SP01B_14_290113,							
SP01B_15_290113,	SP01B_16_290113,							
SP01B_17_290113,	SP01B_18_290113,							
SP01B_19_290113,	SP01B_20_290113,							
DUP01_01_290113,	DUP01_02_290113,							
DUP01_03_290113								
EG048: Hexavalent Chromium (Alkaline Digest)								
Soil Glass Jar - Unpreserved (EG048G)		29-JAN-2013	01-FEB-2013	26-FEB-2013	✓	01-FEB-2013	08-FEB-2013	✓
SP01B_01_290113,	SP01B_02_290113,							
SP01B_03_290113,	SP01B_04_290113,							
SP01B_05_290113,	SP01B_06_290113,							
SP01B_07_290113,	SP01B_08_290113,							
SP01B_09_290113,	SP01B_10_290113,							
SP01B_11_290113,	SP01B_12_290113,							
SP01B_13_290113,	SP01B_14_290113,							
SP01B_15_290113,	SP01B_16_290113,							
SP01B_17_290113,	SP01B_18_290113,							
SP01B_19_290113,	SP01B_20_290113,							
DUP01_01_290113,	DUP01_02_290113,							
DUP01_03_290113								
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066)		29-JAN-2013	01-FEB-2013	12-FEB-2013	✓	05-FEB-2013	13-MAR-2013	✓
SP01B_01_290113,	SP01B_02_290113,							
SP01B_03_290113,	SP01B_04_290113,							
SP01B_05_290113,	SP01B_06_290113,							
SP01B_07_290113,	SP01B_08_290113,							
SP01B_09_290113,	SP01B_10_290113,							
SP01B_11_290113,	SP01B_12_290113,							
SP01B_13_290113,	SP01B_14_290113,							
SP01B_15_290113,	SP01B_16_290113,							
SP01B_17_290113,	SP01B_18_290113,							
SP01B_19_290113,	SP01B_20_290113							
Soil Glass Jar - Unpreserved (EP066)		29-JAN-2013	04-FEB-2013	12-FEB-2013	✓	05-FEB-2013	16-MAR-2013	✓
DUP01_01_290113,	DUP01_02_290113,							
DUP01_03_290113								



Matrix: **SOIL**

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

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068)		29-JAN-2013	01-FEB-2013	12-FEB-2013	✓	05-FEB-2013	13-MAR-2013	✓
SP01B_01_290113, SP01B_02_290113, SP01B_03_290113, SP01B_04_290113, SP01B_05_290113, SP01B_06_290113, SP01B_07_290113, SP01B_08_290113, SP01B_09_290113, SP01B_10_290113, SP01B_11_290113, SP01B_12_290113, SP01B_13_290113, SP01B_14_290113, SP01B_15_290113, SP01B_16_290113, SP01B_17_290113, SP01B_18_290113, SP01B_19_290113, SP01B_20_290113								
Soil Glass Jar - Unpreserved (EP068)	DUP01_02_290113,	29-JAN-2013	04-FEB-2013	12-FEB-2013	✓	05-FEB-2013	16-MAR-2013	✓
DUP01_01_290113, DUP01_03_290113								
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
Soil Glass Jar - Unpreserved (EP071)		29-JAN-2013	01-FEB-2013	12-FEB-2013	✓	04-FEB-2013	13-MAR-2013	✓
DUP01_01_290113, DUP01_02_290113, DUP01_03_290113								
Soil Glass Jar - Unpreserved (EP071)		29-JAN-2013	04-FEB-2013	12-FEB-2013	✓	04-FEB-2013	16-MAR-2013	✓
SP01B_01_290113, SP01B_02_290113, SP01B_03_290113, SP01B_04_290113, SP01B_05_290113, SP01B_06_290113, SP01B_07_290113, SP01B_08_290113, SP01B_09_290113, SP01B_10_290113, SP01B_11_290113, SP01B_12_290113, SP01B_13_290113, SP01B_14_290113, SP01B_15_290113, SP01B_16_290113, SP01B_17_290113, SP01B_18_290113, SP01B_19_290113, SP01B_20_290113								



Matrix: **SOIL**

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

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM))								
DUP01_01_290113, DUP01_03_290113	DUP01_02_290113,	29-JAN-2013	01-FEB-2013	12-FEB-2013	✓	05-FEB-2013	13-MAR-2013	✓
Soil Glass Jar - Unpreserved (EP075(SIM))								
SP01B_01_290113, SP01B_03_290113, SP01B_05_290113, SP01B_07_290113, SP01B_09_290113, SP01B_11_290113, SP01B_13_290113, SP01B_15_290113, SP01B_17_290113, SP01B_19_290113,	SP01B_02_290113, SP01B_04_290113, SP01B_06_290113, SP01B_08_290113, SP01B_10_290113, SP01B_12_290113, SP01B_14_290113, SP01B_16_290113, SP01B_18_290113, SP01B_20_290113	29-JAN-2013	04-FEB-2013	12-FEB-2013	✓	03-FEB-2013	16-MAR-2013	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
DUP01_01_290113, DUP01_03_290113	DUP01_02_290113,	29-JAN-2013	01-FEB-2013	12-FEB-2013	✓	05-FEB-2013	13-MAR-2013	✓
Soil Glass Jar - Unpreserved (EP075(SIM))								
SP01B_01_290113, SP01B_03_290113, SP01B_05_290113, SP01B_07_290113, SP01B_09_290113, SP01B_11_290113, SP01B_13_290113, SP01B_15_290113, SP01B_17_290113, SP01B_19_290113,	SP01B_02_290113, SP01B_04_290113, SP01B_06_290113, SP01B_08_290113, SP01B_10_290113, SP01B_12_290113, SP01B_14_290113, SP01B_16_290113, SP01B_18_290113, SP01B_20_290113	29-JAN-2013	04-FEB-2013	12-FEB-2013	✓	03-FEB-2013	16-MAR-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: BTEX							
Soil Glass Jar - Unpreserved (EP080)							
SP01B_01_290113, SP01B_02_290113,	29-JAN-2013	01-FEB-2013	12-FEB-2013	✓	01-FEB-2013	12-FEB-2013	✓
SP01B_03_290113, SP01B_04_290113,							
SP01B_05_290113, SP01B_06_290113,							
SP01B_07_290113, SP01B_08_290113,							
SP01B_09_290113, SP01B_10_290113,							
SP01B_11_290113, SP01B_12_290113,							
SP01B_13_290113, SP01B_14_290113,							
SP01B_15_290113, SP01B_16_290113,							
SP01B_17_290113, SP01B_18_290113,							
SP01B_19_290113, SP01B_20_290113,							
DUP01_01_290113, DUP01_02_290113,							
DUP01_03_290113							
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
SP01B_01_290113, SP01B_02_290113,	29-JAN-2013	01-FEB-2013	12-FEB-2013	✓	01-FEB-2013	12-FEB-2013	✓
SP01B_03_290113, SP01B_04_290113,							
SP01B_05_290113, SP01B_06_290113,							
SP01B_07_290113, SP01B_08_290113,							
SP01B_09_290113, SP01B_10_290113,							
SP01B_11_290113, SP01B_12_290113,							
SP01B_13_290113, SP01B_14_290113,							
SP01B_15_290113, SP01B_16_290113,							
SP01B_17_290113, SP01B_18_290113,							
SP01B_19_290113, SP01B_20_290113,							
DUP01_01_290113, DUP01_02_290113,							
DUP01_03_290113							
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft							
Soil Glass Jar - Unpreserved (EP080)							
SP01B_01_290113, SP01B_02_290113,	29-JAN-2013	01-FEB-2013	12-FEB-2013	✓	01-FEB-2013	12-FEB-2013	✓
SP01B_03_290113, SP01B_04_290113,							
SP01B_05_290113, SP01B_06_290113,							
SP01B_07_290113, SP01B_08_290113,							
SP01B_09_290113, SP01B_10_290113,							
SP01B_11_290113, SP01B_12_290113,							
SP01B_13_290113, SP01B_14_290113,							
SP01B_15_290113, SP01B_16_290113,							
SP01B_17_290113, SP01B_18_290113,							
SP01B_19_290113, SP01B_20_290113,							
DUP01_01_290113, DUP01_02_290113,							
DUP01_03_290113							



Matrix: **WATER**

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

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Filtered; Lab-acidified (EG020A-F) SPQCC01_290113	29-JAN-2013	---	28-JUL-2013	----	05-FEB-2013	28-JUL-2013	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Filtered; Lab-acidified (EG035F) SPQCC01_290113	29-JAN-2013	---	26-FEB-2013	----	05-FEB-2013	26-FEB-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft							
Amber Glass Bottle - Unpreserved (EP071) SPQCC01_290113	29-JAN-2013	04-FEB-2013	05-FEB-2013	✓	04-FEB-2013	16-MAR-2013	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) SPQCC01_290113	29-JAN-2013	04-FEB-2013	05-FEB-2013	✓	05-FEB-2013	16-MAR-2013	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) SPQCC01_290113	29-JAN-2013	04-FEB-2013	12-FEB-2013	✓	04-FEB-2013	12-FEB-2013	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080) SPQCC01_290113	29-JAN-2013	04-FEB-2013	12-FEB-2013	✓	04-FEB-2013	12-FEB-2013	✓



Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification	
Analytical Methods	Method	QC	Regular	Actual	Expected		Evaluation
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	4	30	13.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	4	37	10.8	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	4	39	10.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	4	33	12.1	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	3	25	12.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	3	30	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	33	12.1	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	4	40	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	40	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	30	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	39	5.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	2	33	6.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	25	8.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	30	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	33	6.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	40	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	30	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	39	5.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	2	33	6.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	25	8.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	30	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	33	6.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	40	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	30	6.7	5.0	✓	ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	39	5.1	5.0	✓	ALS QCS3 requirement
Pesticides by GCMS	EP068	2	33	6.1	5.0	✓	ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	25	8.0	5.0	✓	ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	30	6.7	5.0	✓	ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	33	6.1	5.0	✓	ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	40	5.0	5.0	✓	ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✓	ALS QCS3 requirement



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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	1	3	33.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	11	18.2	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	3	33.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	11	9.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	1	100.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	8	12.5	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	3	33.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	11	9.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	1	100.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	8	12.5	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	3	33.3	5.0	✓	ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	11	9.1	5.0	✓	ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	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 (2010 Draft) 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 (1999) 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 (1999) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
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 (1999) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	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 technique is compliant with NEPM (1999) Schedule B(3) (Method 504,505)
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 (1999) 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 (1999) 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 (1999) Schedule B(3) (Method 501)
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 (1999) 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 (1999) 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 (1999) 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 (1999) 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.
Lab Acidification of Dissolved Metals	EN80F	WATER	US EPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 500 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 (1999) 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							
EP080/071: Total Petroleum Hydrocarbons	ES1302022-010	Anonymous	C10 - C14 Fraction	----	23.0 %	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 : **EB1302398**

Client : **URS AUSTRALIA PTY LTD**
 Contact : **ANDREW PIGGIN**
 Address : **LEVEL 4**
226 ADELAIDE TERRACE
PERTH WA, AUSTRALIA 6000

Laboratory : **Environmental Division Brisbane**
 Contact : **Customer Services**
 Address : **32 Shand Street Stafford QLD Australia 4053**

E-mail : **andrew.piggin@urs.com**
 Telephone : **+61 08 9326 0100**
 Facsimile : **+61 08 9326 0296**

E-mail : **Brisbane.Enviro.Services@alsglobal.com**
 Telephone : **+61 7 3243 7222**
 Facsimile : **+61 7 3243 7218**

Project : **42213719**

Page : **1 of 3**

Order number : **----**

Quote number : **ES2012URSWA0354 (EN/001/12)**

C-O-C number : **----**

Site : **----**

Sampler : **Bek Aagaard**

QC Level : **NEPM 1999 Schedule B(3) and ALS QCS3 requirement**

Dates

Date Samples Received : **30-JAN-2013**
 Client Requested Due Date : **12-FEB-2013**

Issue Date : **05-FEB-2013 12:29**
 Scheduled Reporting Date : **12-FEB-2013**

Delivery Details

Mode of Delivery : **Carrier**
 No. of coolers/boxes : **1 MEDIUM**
 Security Seal : **Intact.**

Temperature : **1.8°C - Ice present**
 No. of samples received : **1**
 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.**
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Please direct any queries related to sample condition / numbering / breakages to Matt Goodwin.
- Analytical work for this work order will be conducted at ALS Melbourne.
- 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 - P-13/1 NEPM Table 5A
EB1302398-001	29-JAN-2013 15:00	DUP_04_290113	✓

Proactive Holding Time Report

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



Requested Deliverables

ANDREW PIGGIN

- *AU Certificate of Analysis - NATA (COA)	Email	andrew.piggin@urs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	andrew.piggin@urs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	andrew.piggin@urs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	andrew.piggin@urs.com
- A4 - AU Tax Invoice (INV)	Email	andrew.piggin@urs.com
- Chain of Custody (CoC) (COC)	Email	andrew.piggin@urs.com
- EDI Format - ENMRG (ENMRG)	Email	andrew.piggin@urs.com
- EDI Format - EQUIS V5 URS (EQUIS_V5_URS)	Email	andrew.piggin@urs.com
- EDI Format - ESDAT (ESDAT)	Email	andrew.piggin@urs.com
- EDI Format - MRED (MRED)	Email	andrew.piggin@urs.com

BEK AAGAARD

- *AU Certificate of Analysis - NATA	Email	bek.aagaard@urs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep)	Email	bek.aagaard@urs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA	Email	bek.aagaard@urs.com
- A4 - AU Sample Receipt Notification - Environmental HT	Email	bek.aagaard@urs.com
- Chain of Custody (CoC)	Email	bek.aagaard@urs.com
- EDI Format - ENMRG	Email	bek.aagaard@urs.com
- EDI Format - EQUIS V5 URS	Email	bek.aagaard@urs.com
- EDI Format - ESDAT	Email	bek.aagaard@urs.com
- EDI Format - MRED	Email	bek.aagaard@urs.com

PERTH ACCOUNTS

- A4 - AU Tax Invoice (INV)	Email	perth_accounts@urscorp.com
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TIM SMITH

- *AU Certificate of Analysis - NATA	Email	tim.smith@urs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep)	Email	tim.smith@urs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA	Email	tim.smith@urs.com
- A4 - AU Sample Receipt Notification - Environmental HT	Email	tim.smith@urs.com
- Chain of Custody (CoC)	Email	tim.smith@urs.com
- EDI Format - ENMRG	Email	tim.smith@urs.com
- EDI Format - EQUIS V5 URS	Email	tim.smith@urs.com
- EDI Format - ESDAT	Email	tim.smith@urs.com
- EDI Format - MRED	Email	tim.smith@urs.com

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: EB1302398	Page	: 1 of 7
Client	: URS AUSTRALIA PTY LTD	Laboratory	: Environmental Division Brisbane
Contact	: ANDREW PIGGIN	Contact	: Customer Services
Address	: LEVEL 4 226 ADELAIDE TERRACE PERTH WA, AUSTRALIA 6000	Address	: 32 Shand Street Stafford QLD Australia 4053
E-mail	: andrew.piggin@urs.com	E-mail	: Brisbane.Enviro.Services@alsglobal.com
Telephone	: +61 08 9326 0100	Telephone	: +61 7 3243 7222
Facsimile	: +61 08 9326 0296	Facsimile	: +61 7 3243 7218
Project	: 42213719	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 30-JAN-2013
C-O-C number	: ----	Issue Date	: 11-FEB-2013
Sampler	: Bek Aagaard	No. of samples received	: 1
Site	: ----	No. of samples analysed	: 1
Quote number	: EN/001/12		

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

- EP066/068: Sample EB1302398-001 required dilution prior to analysis due to matrix interferences. LOR values have been adjusted accordingly.



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
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics
		Melbourne Inorganics
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics
		Melbourne Organics
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics
		Melbourne Inorganics
Xingbin Lin	Senior Organic Chemist	Melbourne Organics



Analytical Results

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

Client sample ID

DUP_04_290113

Client sampling date / time

29-JAN-2013 15:00

Compound	CAS Number	LOR	Unit	EB1302398-001	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	11.4	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	12	----	----	----	----
Barium	7440-39-3	10	mg/kg	240	----	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	2	----	----	----	----
Chromium	7440-47-3	2	mg/kg	69	----	----	----	----
Cobalt	7440-48-4	2	mg/kg	2	----	----	----	----
Copper	7440-50-8	5	mg/kg	24	----	----	----	----
Lead	7439-92-1	5	mg/kg	92	----	----	----	----
Manganese	7439-96-5	5	mg/kg	74	----	----	----	----
Nickel	7440-02-0	2	mg/kg	10	----	----	----	----
Vanadium	7440-62-2	5	mg/kg	86	----	----	----	----
Zinc	7440-66-6	5	mg/kg	187	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.4	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.20	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.20	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.20	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.20	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.20	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.20	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.20	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.20	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.20	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.20	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.20	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.20	----	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

DUP_04_290113

Client sampling date / time

29-JAN-2013 15:00

Compound	CAS Number	LOR	Unit	EB1302398-001	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued								
4,4'-DDE	72-55-9	0.05	mg/kg	<0.20	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.20	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.20	----	----	----	----
4,4'-DDD	72-54-8	0.05	mg/kg	<0.20	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.20	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.20	----	----	----	----
4,4'-DDT	50-29-3	0.2	mg/kg	<0.8	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.20	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	<0.8	----	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	----	----
4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----

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

Client sample ID

DUP 04 290113

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Client sampling date / time

29-JAN-2013 15:00

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Analytical Results

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

Client sample ID

DUP_04_290113

Client sampling date / time

29-JAN-2013 15:00

Compound	CAS Number	LOR	Unit	EB1302398-001	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate - Continued								
Dibromo-DDE	21655-73-2	0.1	%	96.4	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	96.0	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	106	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	111	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	88.9	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	99.0	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	124	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	124	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	74.7	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	75.0	----	----	----	----
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	33	133
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	29.8	146
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	23.7	146
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2,4,6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	51	133

Environmental Division

QUALITY CONTROL REPORT

Work Order	: EB1302398	Page	: 1 of 12
Client	: URS AUSTRALIA PTY LTD	Laboratory	: Environmental Division Brisbane
Contact	: ANDREW PIGGIN	Contact	: Customer Services
Address	: LEVEL 4 226 ADELAIDE TERRACE PERTH WA, AUSTRALIA 6000	Address	: 32 Shand Street Stafford QLD Australia 4053
E-mail	: andrew.piggin@urs.com	E-mail	: Brisbane.Enviro.Services@alsglobal.com
Telephone	: +61 08 9326 0100	Telephone	: +61 7 3243 7222
Facsimile	: +61 08 9326 0296	Facsimile	: +61 7 3243 7218
Project	: 42213719	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 30-JAN-2013
C-O-C number	: ----	Issue Date	: 11-FEB-2013
Sampler	: Bek Aagaard	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1
Quote number	: EN/001/12		

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>
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics
Xingbin Lin	Senior Organic Chemist	Melbourne 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**

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: 2715110)									
EB1302398-001	DUP_04_290113	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	11.4	11.8	3.4	0% - 50%
EM1301041-006	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	4.7	4.0	14.9	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 2716123)									
EB1302398-001	DUP_04_290113	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	2	1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	240	240	0.0	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	69	59	15.6	0% - 20%
		EG005T: Cobalt	7440-48-4	2	mg/kg	2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	10	5	58.2	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	12	12	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	24	29	19.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	92	93	2.0	0% - 50%
		EG005T: Manganese	7439-96-5	5	mg/kg	74	92	21.0	0% - 50%
		EG005T: Vanadium	7440-62-2	5	mg/kg	86	104	18.8	0% - 20%
EG005T: Zinc	7440-66-6	5	mg/kg	187	178	4.6	0% - 20%		
EM1301020-003	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	130	120	0.0	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	17	24	35.3	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	10	14	35.9	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	34	36	6.3	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	16	23	35.3	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	41	51	21.2	0% - 50%
		EG005T: Manganese	7439-96-5	5	mg/kg	340	379	10.8	0% - 20%
		EG005T: Vanadium	7440-62-2	5	mg/kg	23	33	36.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	50	66	26.5	0% - 50%
		EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2716124)							
EB1302398-001	DUP_04_290113	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM1301020-003	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 2717278)									
EB1302398-001	DUP_04_290113	EG048: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM1301100-001	Anonymous	EG048: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2714953)									
EB1302398-001	DUP_04_290113	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.4	<0.4	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2714952)									
EB1302398-001	DUP_04_290113	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.8	<0.8	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.8	<0.8	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 2716018)									
EB1302398-001	DUP_04_290113	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
		EM1300997-012	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

EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2714682)

Page : 6 of 12
 Work Order : EB1302398
 Client : URS AUSTRALIA PTY LTD
 Project : 42213719



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: 2714682) - continued									
EB1302398-001	DUP_04_290113	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EM1301041-014	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2716017)									
EB1302398-001	DUP_04_290113	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
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2714682)									
EB1302398-001	DUP_04_290113	EP080: C6 - C10 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EM1301041-014	Anonymous	EP080: C6 - C10 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2716017)									
EB1302398-001	DUP_04_290113	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	----	50	mg/kg	<50	<50	0.0	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 2714682)									
EB1302398-001	DUP_04_290113	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
EM1301041-014	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**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 2716123)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	13.6 mg/kg	95.5	88	122
EG005T: Barium	7440-39-3	10	mg/kg	<10	139 mg/kg	102	90	120
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	6.2 mg/kg	88.5	83	115
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	2.8 mg/kg	104	75	117
EG005T: Chromium	7440-47-3	2	mg/kg	<2	60.9 mg/kg	94.5	84	118
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	25.4 mg/kg	89.4	78	118
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.1 mg/kg	94.0	87	117
EG005T: Lead	7439-92-1	5	mg/kg	<5	54.9 mg/kg	90.5	86	116
EG005T: Manganese	7439-96-5	5	mg/kg	<5	137 mg/kg	91.3	81	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.1 mg/kg	95.9	86	118
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	34.9 mg/kg	94.8	84	116
EG005T: Zinc	7440-66-6	5	mg/kg	<5	105 mg/kg	89.7	81	115
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2716124)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	1.47 mg/kg	98.8	81	123
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 2717278)								
EG048: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	85.4	70	114
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2714953)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1.1 mg/kg	89.1	55	135
EP068A: Organochlorine Pesticides (OC) (QCLot: 2714952)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	78.4	52	133
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	74.0	50	132
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	78.8	50	138
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	77.8	54	132
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.4	51	133
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	83.6	51	134
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	84.4	52	133
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	85.7	54	136
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	85.2	53	136
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.4	53	133
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	84.9	52	137
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	86.3	49	132
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	86.2	53	134
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	80.4	45	141
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	84.3	54	132



Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP068A: Organochlorine Pesticides (OC) (QCLot: 2714952) - continued								
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.0	52	136
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	83.4	49	135
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.3	49	142
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	80.6	40	146
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	89.0	51	137
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	82.6	38	149
EP075(SIM)A: Phenolic Compounds (QCLot: 2716018)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	10 mg/kg	101	61	123
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	10 mg/kg	105	66	121
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	10 mg/kg	99.6	65	125
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	20 mg/kg	101	65	125
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	10 mg/kg	92.0	53	127
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	10 mg/kg	100	64	125
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	10 mg/kg	98.6	61	127
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	10 mg/kg	97.2	63	126
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	10 mg/kg	122	62	124
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	10 mg/kg	91.0	58	124
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	10 mg/kg	94.8	59	124
EP075(SIM): Pentachlorophenol	87-86-5	2.0	mg/kg	<2	10 mg/kg	38.0	10	120
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2716018)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	10 mg/kg	99.6	66	124
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	10 mg/kg	98.6	65	128
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	10 mg/kg	99.0	66	123
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	10 mg/kg	95.6	65	124
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	10 mg/kg	103	65	122
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	10 mg/kg	99.8	65	121
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	10 mg/kg	104	67	123
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	10 mg/kg	104	66	124
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	10 mg/kg	103	64	124
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	10 mg/kg	110	64	127
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	10 mg/kg	114	60	126
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	10 mg/kg	104	63	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	10 mg/kg	106	63	125
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	10 mg/kg	94.4	58	120
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	10 mg/kg	96.8	58	119
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	10 mg/kg	92.4	57	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2714682)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	95.0	63	129



Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) LowHigh	
Method: Compound	CAS Number	LOR	Unit	Result				
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2716017)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	602 mg/kg	84.2	55	121
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	1875 mg/kg	85.0	72	124
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	738 mg/kg	94.2	66	116
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2714682)								
EP080: C6 - C10 Fraction	----	10	mg/kg	<10	45 mg/kg	92.1	60	134
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2716017)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	929 mg/kg	81.2	66	122
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	2237 mg/kg	94.2	69	119
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	232 mg/kg	90.3	44	124
EP071: >C10 - C40 Fraction (sum)	----	100	mg/kg	<100	----	----	----	----
EP080: BTEXN (QCLot: 2714682)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	98.8	68	120
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	94.4	69	123
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	96.1	65	121
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	4 mg/kg	92.9	63	131
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	95.2	66	130
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	94.0	56	136

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	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 2716123)							
EM1300807-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	98.7	78	124
		EG005T: Barium	7440-39-3	50 mg/kg	106	71	130
		EG005T: Beryllium	7440-41-7	50 mg/kg	116	85	125
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	99.8	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	100	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	113	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	# Not Determined	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	101	78	120
		EG005T: Vanadium	7440-62-2	50 mg/kg	95.1	76	124



Sub-Matrix: **SOIL**

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: 2716123) - continued							
EM1300807-001	Anonymous	EG005T: Zinc	7440-66-6	50 mg/kg	108	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2716124)							
EM1300807-001	Anonymous	EG035T: Mercury	7439-97-6	5.0 mg/kg	104	80	120
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 2717278)							
EM1301072-001	Anonymous	EG048: Hexavalent Chromium	18540-29-9	40 mg/kg	90.5	58	114
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2714953)							
EM1300906-029	Anonymous	EP066: Total Polychlorinated biphenyls	----	1.1 mg/kg	96.4	55	132
EP068A: Organochlorine Pesticides (OC) (QCLot: 2714952)							
EM1301029-001	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	75.7	30	129
		EP068: Heptachlor	76-44-8	0.5 mg/kg	80.2	22.2	129
		EP068: Aldrin	309-00-2	0.5 mg/kg	88.0	25	128
		EP068: Dieldrin	60-57-1	0.5 mg/kg	90.0	36	132
		EP068: Endrin	72-20-8	0.5 mg/kg	103	32	138
		EP068: 4,4'-DDT	50-29-3	0.5 mg/kg	54.9	21.8	140
EP075(SIM)A: Phenolic Compounds (QCLot: 2716018)							
EM1300997-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	96.5	63	124
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	86.7	69	120
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	52.2	52	125
		EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	10 mg/kg	95.0	61	118
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	64.8	12	136
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2716018)							
EM1300997-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	91.6	67	122
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	68.7	64	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2714682)							
EM1301029-001	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	75.8	44	124
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2716017)							
EM1301035-001	Anonymous	EP071: C10 - C14 Fraction	----	602 mg/kg	100	53	123
		EP071: C15 - C28 Fraction	----	1875 mg/kg	97.1	70	124
		EP071: C29 - C36 Fraction	----	738 mg/kg	103	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2714682)							
EM1301029-001	Anonymous	EP080: C6 - C10 Fraction	----	33 mg/kg	74.5	45	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2716017)							
EM1301035-001	Anonymous	EP071: >C10 - C16 Fraction	----	929 mg/kg	93.8	65	123
		EP071: >C16 - C34 Fraction	----	2237 mg/kg	102	67	121
		EP071: >C34 - C40 Fraction	----	232 mg/kg	106	44	126

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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: 2714682)							
EM1301029-001	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	87.6	43	137
		EP080: Toluene	108-88-3	2 mg/kg	86.7	51	137

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: 2714682)										
EM1301029-001	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	75.8	----	44	124	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2714682)										
EM1301029-001	Anonymous	EP080: C6 - C10 Fraction	----	33 mg/kg	74.5	----	45	127	----	----
EP080: BTEXN (QCLot: 2714682)										
EM1301029-001	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	87.6	----	43	137	----	----
		EP080: Toluene	108-88-3	2 mg/kg	86.7	----	51	137	----	----
EP068A: Organochlorine Pesticides (OC) (QCLot: 2714952)										
EM1301029-001	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	75.7	----	30	129	----	----
		EP068: Heptachlor	76-44-8	0.5 mg/kg	80.2	----	22.2	129	----	----
		EP068: Aldrin	309-00-2	0.5 mg/kg	88.0	----	25	128	----	----
		EP068: Dieldrin	60-57-1	0.5 mg/kg	90.0	----	36	132	----	----
		EP068: Endrin	72-20-8	0.5 mg/kg	103	----	32	138	----	----
		EP068: 4,4'-DDT	50-29-3	0.5 mg/kg	54.9	----	21.8	140	----	----
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2714953)										
EM1300906-029	Anonymous	EP066: Total Polychlorinated biphenyls	----	1.1 mg/kg	96.4	----	55	132	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2716017)										
EM1301035-001	Anonymous	EP071: C10 - C14 Fraction	----	602 mg/kg	100	----	53	123	----	----
		EP071: C15 - C28 Fraction	----	1875 mg/kg	97.1	----	70	124	----	----
		EP071: C29 - C36 Fraction	----	738 mg/kg	103	----	64	118	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2716017)										
EM1301035-001	Anonymous	EP071: >C10 - C16 Fraction	----	929 mg/kg	93.8	----	65	123	----	----
		EP071: >C16 - C34 Fraction	----	2237 mg/kg	102	----	67	121	----	----
		EP071: >C34 - C40 Fraction	----	232 mg/kg	106	----	44	126	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 2716018)										
EM1300997-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	96.5	----	63	124	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	86.7	----	69	120	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	52.2	----	52	125	----	----

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Sub-Matrix: **SOIL**

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
EP075(SIM)A: Phenolic Compounds (QCLot: 2716018) - continued										
EM1300997-001	Anonymous	EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	10 mg/kg	95.0	----	61	118	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	64.8	----	12	136	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2716018)										
EM1300997-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	91.6	----	67	122	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	68.7	----	64	125	----	----
EG005T: Total Metals by ICP-AES (QCLot: 2716123)										
EM1300807-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	98.7	----	78	124	----	----
		EG005T: Barium	7440-39-3	50 mg/kg	106	----	71	130	----	----
		EG005T: Beryllium	7440-41-7	50 mg/kg	116	----	85	125	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	----	84	116	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	99.8	----	79	121	----	----
		EG005T: Copper	7440-50-8	50 mg/kg	100	----	82	124	----	----
		EG005T: Lead	7439-92-1	50 mg/kg	113	----	76	124	----	----
		EG005T: Manganese	7439-96-5	50 mg/kg	# Not Determined	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	101	----	78	120	----	----
		EG005T: Vanadium	7440-62-2	50 mg/kg	95.1	----	76	124	----	----
		EG005T: Zinc	7440-66-6	50 mg/kg	108	----	74	128	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2716124)										
EM1300807-001	Anonymous	EG035T: Mercury	7439-97-6	5.0 mg/kg	104	----	80	120	----	----
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 2717278)										
EM1301072-001	Anonymous	EG048: Hexavalent Chromium	18540-29-9	40 mg/kg	90.5	----	58	114	----	----

Environmental Division

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: EB1302398	Page	: 1 of 6
Client	: URS AUSTRALIA PTY LTD	Laboratory	: Environmental Division Brisbane
Contact	: ANDREW PIGGIN	Contact	: Customer Services
Address	: LEVEL 4 226 ADELAIDE TERRACE PERTH WA, AUSTRALIA 6000	Address	: 32 Shand Street Stafford QLD Australia 4053
E-mail	: andrew.piggin@urs.com	E-mail	: Brisbane.Enviro.Services@alsglobal.com
Telephone	: +61 08 9326 0100	Telephone	: +61 7 3243 7222
Facsimile	: +61 08 9326 0296	Facsimile	: +61 7 3243 7218
Project	: 42213719	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 30-JAN-2013
C-O-C number	: ----	Issue Date	: 11-FEB-2013
Sampler	: Bek Aagaard	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1
Quote number	: EN/001/12		

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

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non-volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

Matrix: **SOIL**

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

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103) DUP_04_290113	29-JAN-2013	----	----	----	05-FEB-2013	12-FEB-2013	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) DUP_04_290113	29-JAN-2013	07-FEB-2013	28-JUL-2013	✓	07-FEB-2013	28-JUL-2013	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) DUP_04_290113	29-JAN-2013	07-FEB-2013	26-FEB-2013	✓	08-FEB-2013	26-FEB-2013	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048) DUP_04_290113	29-JAN-2013	06-FEB-2013	26-FEB-2013	✓	08-FEB-2013	13-FEB-2013	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) DUP_04_290113	29-JAN-2013	06-FEB-2013	12-FEB-2013	✓	07-FEB-2013	18-MAR-2013	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068) DUP_04_290113	29-JAN-2013	06-FEB-2013	12-FEB-2013	✓	07-FEB-2013	18-MAR-2013	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) DUP_04_290113	29-JAN-2013	06-FEB-2013	12-FEB-2013	✓	07-FEB-2013	18-MAR-2013	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) DUP_04_290113	29-JAN-2013	06-FEB-2013	12-FEB-2013	✓	07-FEB-2013	18-MAR-2013	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) DUP_04_290113	29-JAN-2013	06-FEB-2013	12-FEB-2013	✓	07-FEB-2013	18-MAR-2013	✓
EP080: BTEX							
Soil Glass Jar - Unpreserved (EP080) DUP_04_290113	29-JAN-2013	05-FEB-2013	12-FEB-2013	✓	06-FEB-2013	12-FEB-2013	✓

Page : 3 of 6
 Work Order : EB1302398
 Client : URS AUSTRALIA PTY LTD
 Project : 42213719



Matrix: **SOIL**

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

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) DUP_04_290113	29-JAN-2013	05-FEB-2013	12-FEB-2013	✓	06-FEB-2013	12-FEB-2013	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) DUP_04_290113	29-JAN-2013	05-FEB-2013	12-FEB-2013	✓	06-FEB-2013	12-FEB-2013	✓



Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification	
Analytical Methods	Method	QC	Regular	Actual	Expected		Evaluation
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	14	14.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	4	25.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	5	20.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Hexavalent Chromium by Alkaline Digestion	EG048	2	10	20.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	15	13.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	15	13.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	8	12.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	15	13.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	7.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	4	25.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	5	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Hexavalent Chromium by Alkaline Digestion	EG048	1	10	10.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	15	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	8	12.5	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	15	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	7.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	4	25.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	5	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Hexavalent Chromium by Alkaline Digestion	EG048	1	10	10.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	15	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	8	12.5	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	15	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	7.1	5.0	✓	ALS QCS3 requirement
Pesticides by GCMS	EP068	1	4	25.0	5.0	✓	ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	5	20.0	5.0	✓	ALS QCS3 requirement
Total Hexavalent Chromium by Alkaline Digestion	EG048	1	10	10.0	5.0	✓	ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✓	ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	15	6.7	5.0	✓	ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	8	12.5	5.0	✓	ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	15	6.7	5.0	✓	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 (2010 Draft) 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 (1999) 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 (1999) Schedule B(3)
Total Hexavalent Chromium by Alkaline Digestion	EG048	SOIL	USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by UV-VIS spectrophotometer following pH adjustment and colour development using dephenylcarbazine. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
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 (1999) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	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 technique is compliant with NEPM (1999) Schedule B(3) (Method 504,505)
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 (1999) 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 (1999) 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 (1999) 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 A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na ₂ SO ₄ and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



Summary of Outliers

Outliers : Quality Control Samples

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

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	EM1300807-001	Anonymous	Manganese	7439-96-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

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

Regular Sample Surrogates

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

Outliers : Analysis Holding Time Compliance

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

- 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.

Attachment C

DATA VALIDATION SUMMARY REPORT; SOIL

Date: 12/02/2013

Site: **Waterfront Precinct**
 Project No.: **42213719**
 Project Manager: **Tim Smith**
 Matrix: **Soil**
 Laboratory: **ALS**
 Lab Batch Nos: **ES1302091 / EB1302398**
 Sample Dates: **29/01/2013**

Validation Conducted by: **Bek Aagaard**
 Authorised by: **Tim Smith**

Component		Assessment				Comments
Frequency of laboratory QA/QC		OK	<input checked="" type="checkbox"/>	NOT OK	<input type="checkbox"/>	
Number of tests requested/reported		OK	<input checked="" type="checkbox"/>	NOT OK	<input type="checkbox"/>	
Sample handling/preservation/holding times		OK	<input checked="" type="checkbox"/>	NOT OK	<input type="checkbox"/>	
Limits of reporting		OK	<input checked="" type="checkbox"/>	NOT OK	<input type="checkbox"/>	
Blank Analysis	Field Blank	OK	<input checked="" type="checkbox"/>	NOT OK	<input type="checkbox"/>	Refer to Note 1
	Rinsate Blank	OK	<input checked="" type="checkbox"/>	NOT OK	<input type="checkbox"/>	
	Trip Blank	OK	<input checked="" type="checkbox"/>	NOT OK	<input type="checkbox"/>	
	Method Blank	OK	<input checked="" type="checkbox"/>	NOT OK	<input type="checkbox"/>	
Field duplicate RPDs		OK	<input checked="" type="checkbox"/>	NOT OK	<input type="checkbox"/>	Refer to Note 2
Laboratory duplicate RPDs		OK	<input checked="" type="checkbox"/>	NOT OK	<input type="checkbox"/>	Refer to Note 3
Matrix Spikes	% Recoveries	OK	<input checked="" type="checkbox"/>	NOT OK	<input type="checkbox"/>	
Surrogate recoveries		OK	<input checked="" type="checkbox"/>	NOT OK	<input type="checkbox"/>	

Other observations

- Note 1 No Field Blank or Trip Blank were analysed; hence potential cross-contamination has not been assessed directly. As no samples, including the rinsate blank, were reported to contain BTEXN or volatile TPH and all samples were taken from the excavator's bucket, using fresh gloves and placed directly into the sample container, the potential for cross-contamination is minimal; therefore, this is not considered to affect the interpretation of the results.
- Note 2 Elevated Relative Percentage Difference (RPDs) were reported for Zinc in field sample (SP02B_02_290113) and its duplicate (DUP01_290113) and Barium and Beryllium in field sample (SP02B_19_290113) and its triplicate (DUP04_290113). This apparent lack of precision is likely due to the inherent heterogeneity of the distribution of metals in soils at the site. This should be taken into consideration when evaluating individual results that are close to investigation levels. Field duplicate RPDs was elevated for Moisture Content in field sample (SP02B_02_290113) and its duplicate (DUP01_290113); however, as moisture content is not considered a parameter of potential concern, this is not considered to affect the interpretation of the results, and should be attributed to the heterogeneity of soils at this site.
- Note 3 Laboratory duplicate RPDs exceeded LOR based limits for TPH C₁₀-C₁₄ in an anomalous sample. Due to the presence of other quality control data, including Intra- and Inter Laboratory duplicates, and as these analytes were not reported above the laboratory LOR, the precision of the analytical data for these analytes is considered acceptable.

Summary Comments:

Soil analytical data can be used as a basis of interpretation, subject to the limitations outlined above.

Recommended Corrective Action

None

Site: Waterfront Precinct
Project No.: 42213719
Project Manager: Tim Smith
Matrix: Soil
Laboratory: ALS
Lab Batch Nos: ES1302091 / EB1302398

Analytical Method	Analytical Parameter	Number of Tests Requested	Number of Tests Reported	Number of Primary Samples	Holding Times (a)	Limits of Reporting (b)	Field Blank (1 per day)		Rinsate Blank (1 per day)		Trip Blank (1 per esky with VOCs)		Method Blank (1 per batch)		Intra-Laboratory Duplicate Sample (1 in 20)		Inter-Laboratory Duplicate Sample (1 in 20)		Lab Duplicate (1 in 10)		Matrix Spike (1 in 20)		LCS (1 per batch)		Surrogates (GC-MS organics)	
							Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Reported	OK
SEMIVOLATILES ANALYSIS/ALS/EP075(SIM)	Acenaphthene	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	2	2	1	2	✓	✓
	Acenaphthylene	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	Anthracene	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	Benz(a)anthracene	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	Benzo(a)pyrene	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	Benzo(a)pyrene TEQ (WHO)	10	24	20	✓	✓	1	0	1	1	0	0	1	0	1	3	1	0	1	4	0	0	1	0	✓	✓
	Benzo(b)fluoranthene	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	Benzo(g,h,i)perylene	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	Benzo(k)fluoranthene	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	Chrysene	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	Dibenz(a,h)anthracene	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	Fluoranthene	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	Fluorene	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	Indeno(1,2,3-cd)pyrene	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	Naphthalene	10	24	20	✓	✓	1	0	1	1	0	0	1	3	1	3	1	1	1	4	0	0	1	2	✓	✓
	Phenanthrene	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	Pyrene	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	2	2	1	2	✓	✓
SEMIVOLATILES ANALYSIS/ALS/EP075(SIM)	2,4,5-Trichlorophenol	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	2,4,6-Trichlorophenol	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	2,4-Dichlorophenol	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	2,4-Dimethylphenol	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	2,6-Dichlorophenol	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	2-Chlorophenol	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	2	2	1	2	✓	✓
	2-Methylphenol	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	2-Nitrophenol	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	2	2	1	2	✓	✓
	3- & 4-Methylphenol	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	4-Chloro-3-Methylphenol	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	2	2	1	2	✓	✓
	Pentachlorophenol	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	2	2	1	2	✓	✓
	Phenol	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	2	2	1	2	✓	✓
INSTRUMENT LABORATORY (NON-METALLIC)	Hexavalent Chromium	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	4	2	2	1	2	✓	✓
METALS ANALYSIS/ALS/EG035T	Mercury	10	24	20	✓	✓	0	0	1	1	0	0	1	2	1	3	1	1	1	3	2	2	1	2	✓	✓
METALS ANALYSIS/ALS/EG005T	Arsenic	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	2	2	1	2	-	-
	Barium	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	-	-
	Beryllium	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	-	-
	Cadmium	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	2	2	1	2	-	-
	Chromium	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	2	2	1	2	-	-
	Cobalt	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	-	-
	Copper	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	2	2	1	2	-	-
	Lead	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	2	2	1	2	-	-
	Manganese	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	-	-
	Nickel	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	2	2	1	2	-	-
	Vanadium	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	0	0	1	2	-	-
	Zinc	10	24	20	✓	✓	1	0	1	1	0	0	1	2	1	3	1	1	1	4	2	2	1	2	-	-
VOLATILES ANALYSIS/ALS/EP080	Benzene	10	24	20	✓	✓	1	0	1	1	1	0	1	2	1	3	1	1	1	4	2	2	1	2	✓	✓
	Ethylbenzene	10	24	20	✓	✓	1	0	1	1	1	0	1	2	1	3	1	1	1	4	2	2	1	2	✓	✓
	meta- & para-Xylene	10	24	20	✓	✓	1	0	1	1	1	0	1	2	1	3	1	1	1	4	2	2	1	2	✓	✓
	Naphthalene	10	24	17	✓	✓	1	0	1	1	1	0	1	3	1	3	1	1	1	6	2	2	1	2	✓	✓
	ortho-Xylene	10	24	20	✓	✓	1	0	1	1	1	0	1	2	1	3	1	1	1	4	2	2	1	2	✓	✓
	Toluene	10	24	20	✓	✓	1	0	1	1	1	0	1	2	1	3	1	1	1	4	2	2	1	2	✓	✓
VOLATILES ANALYSIS/ALS/EP080/071	C6 - C10 Fraction	10	24	20	✓	✓	1	0	1	1	1	0	1	2	1	3	1	1	1	4	2	2	1	2	✓	✓
	C6 - C10 Fraction minus BTEX (F1)	10	24	20	✓	✓	1	0	1	1	1	0	1	2	1	3	1	1	1	4	2	2	1	2	✓	✓
	C6 - C9 Fraction	10	24	20	✓	✓	1	0	1	1	1	0	1	2	1	3	1	1	1	4	2	2	1	2	✓	✓
SEMIVOLATILES ANALYSIS/ALS/EP080/071	>C10 - C16 Fraction	10	24	20	✓	✓	1	0	1	1	1	0	1	2	1	3	1	1	1	4	2	2	1	2	-	-
	>C16 - C34 Fraction	10	24	20	✓	✓	1	0	1	1	1	0	1	2	1	3	1	1	1	4	2	2	1	2	-	-
	>C34 - C40 Fraction	10	24	20	✓	✓	1	0	1	1	1	0	1	2	1	3	1	1	1	4	2	2	1	2	-	-
	C10 - C14 Fraction	10	24	20	✓	✓	1	0	1	1	1	0	1	2	1	3	1	1	1	4	2	2	1	2	-	-
	C15 - C28 Fraction	10	24	20	✓	✓	1	0	1	1	1	0	1	2	1	3	1	1	1	4	2	2	1	2	-	-
	C29 - C36 Fraction	10	24	20	✓	✓	1	0	1	1	1	0	1	2	1	3	1	1	1	4	2	2	1	2	-	-

Site:Waterfront Precinct
Project No.:42213719
Project Manager:Tim Smith
Matrix:Soil
Laboratory:ALS
Lab Batch Nos:ES1302091 / EB1302398

Analytical Method	Analytical Parameter	Number of Tests Requested	Number of Tests Reported	Number of Primary Samples	Holding Times (a)	Limits of Reporting (b)	Field Blank (1 per day)		Rinsate Blank (1 per day)		Trip Blank (1 per esky with VOCs)		Method Blank (1 per batch)		Intra-Laboratory Duplicate Sample (1 in 20)		Inter-Laboratory Duplicate Sample (1 in 20)		Lab Duplicate (1 in 10)		Matrix Spike (1 in 20)		LCS (1 per batch)		Surrogates (GC-MS organics)	
							Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Reported	OK
SEMIVOLATILES ANALYSIS/ALS/EP068A	4,4'-DDD	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	4,4'-DDE	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	4,4'-DDT	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	4	2	2	1	2	✓	✓
	Aldrin	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	4	2	2	1	2	✓	✓
	alpha-BHC	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	alpha-Endosulfan	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	beta-BHC	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	beta-Endosulfan	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	cis-Chlordane	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	delta-BHC	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	Dieldrin	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	4	2	2	1	2	✓	✓
	Endosulfan sulfate	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	Endrin	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	4	2	2	1	2	✓	✓
	Endrin aldehyde	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	Endrin ketone	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	gamma-BHC	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	4	2	2	1	2	✓	✓
	Heptachlor	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	4	2	2	1	2	✓	✓
	Heptachlor epoxide	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	Hexachlorobenzene (HCB)	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	Methoxychlor	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
	trans-Chlordane	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	4	0	0	1	2	✓	✓
SEMIVOLATILES ANALYSIS/ALS/EP066	Total Polychlorinated biphenyls	10	24	20	✓	✓	0	0	0	0	0	0	1	2	1	3	1	1	1	3	2	2	1	2	✓	✓
SOIL PREPARATION/ALS/EA055	Moisture Content (dried @ 103 °C)	10	24	20	✓	✓	0	0	0	0	0	0	1	0	1	3	1	1	1	4	0	0	1	0	-	-

Site:
Project No.:
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Laboratory:
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Sample Dates:

Waterfront Precinct
42213719
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ES1302091 / EB1302398
29/01/2013

Field Duplicates (SOIL)

			SDG	ES1302091		ES1302091					ES1302091		ES1302091			
			Sample ID	SP02B_02_290113	DUP01_290113	RPD	Category1	SP02B_06_290113	DUP02_290113	RPD	Category1	SP02B_14_290113	DUP03_290113	RPD	Category1	
			Date Sampled	29/01/2013	29/01/2013			29/01/2013	29/01/2013			29/01/2013	29/01/2013			
Chem_Group	ChemName	Units	LOR													
Hexavalent Chromium by Alkaline D	Chromium (hexavalent)	mg/kg	0.5	<0.5	<0.5	0		<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
Moisture Content	Moisture Content	%	1	17.9	10.6	51	Fail	17.9	14.2	23	Pass	14.6	11.5	24	Pass	
PAH/Phenols (SIM)	Naphthalene	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	Phenol	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	2-Chlorophenol	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	2-Methylphenol (o-Cresol)	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	3-&4-Methylphenol (m&p-Cresol)	mg/kg	1	<1	<1	0	Pass	<1	<1	0	Pass	<1	<1	0	Pass	
	Acenaphthylene	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	2-Nitrophenol	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	Acenaphthene	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	2,4-Dichlorophenol	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	2,4-Dimethylphenol	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	2,6-Dichlorophenol	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	4-Chloro-3-methylphenol	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	Anthracene	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	Fluorene	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	2,4,6-Trichlorophenol	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	2,4,5-Trichlorophenol	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	Phenanthrene	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	Fluoranthene	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	Benz(a)anthracene	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	Benzo(b)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	Pentachlorophenol	mg/kg	2	<2	<2	0	Pass	<2	<2	0	Pass	<2	<2	0	Pass	
	Benzo(a)pyrene	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	Benzo(a)pyrene TEQ	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	Chrysene	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	Pyrene	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	Benzo(g,h,i)perylene	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	Indeno(1,2,3-cd)pyrene	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	Sum of PAHs	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
Pesticides by GCMS	Aldrin	mg/kg	0.05	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	
	Dieldrin	mg/kg	0.05	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	
	a-BHC	mg/kg	0.05	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	
	b-BHC	mg/kg	0.05	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	
	d-BHC	mg/kg	0.05	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	
	g-BHC (Lindane)	mg/kg	0.05	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	
	cis-Chlordane	mg/kg	0.05	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	
	trans-Chlordane	mg/kg	0.05	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	
	DDD	mg/kg	0.05	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	
	DDE	mg/kg	0.05	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	
	DDT	mg/kg	0.2	<0.2	<0.2	0	Pass	<0.2	<0.2	0	Pass	<0.2	<0.2	0	Pass	
	Endosulfan 1	mg/kg	0.05	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	
	Endosulfan 2	mg/kg	0.05	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	
	Endosulfan sulfate	mg/kg	0.05	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	
	Endrin	mg/kg	0.05	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	
	Endrin aldehyde	mg/kg	0.05	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	
	Endrin ketone	mg/kg	0.05	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	
	Heptachlor	mg/kg	0.05	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	

Site:
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Field Duplicates (SOIL)

			SDG	ES1302091		ES1302091					ES1302091		ES1302091			
			Sample ID	SP02B_02_290113	DUP01_290113	RPD	Category1	SP02B_06_290113	DUP02_290113	RPD	Category1	SP02B_14_290113	DUP03_290113	RPD	Category1	
			Date Sampled	29/01/2013	29/01/2013			29/01/2013	29/01/2013			29/01/2013	29/01/2013			
Chem_Group	ChemName	Units	LOR													
	Heptachlor epoxide	mg/kg	0.05	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	
	Hexachlorobenzene (HCB)	mg/kg	0.05	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	<0.05	<0.05	0	Pass	
	Methoxychlor	mg/kg	0.2	<0.2	<0.2	0	Pass	<0.2	<0.2	0	Pass	<0.2	<0.2	0	Pass	
Polychlorinated Biphenyls (PCB)	Polychlorinated Biphenyls	mg/kg	0.1	<0.1	<0.1	0	Pass	<0.1	<0.1	0	Pass	<0.1	<0.1	0	Pass	
Total Mercury by FIMS	Mercury	mg/kg	0.1	<0.1	<0.1	0	Pass	<0.1	<0.1	0	Pass	<0.1	<0.1	0	Pass	
Total Metals by ICP-AES	Arsenic	mg/kg	5	48	53	10	Pass	8	9	12	Pass	6	<5	18	Pass	
	Barium	mg/kg	10	480	400	18	Pass	100	120	18	Pass	130	90	36	Pass 2	
	Beryllium	mg/kg	1	<1	<1	0	Pass	<1	<1	0	Pass	<1	<1	0	Pass	
	Cadmium	mg/kg	1	13	17	27	Pass	<1	<1	0	Pass	<1	<1	0	Pass	
	Chromium	mg/kg	2	28	35	22	Pass	37	38	3	Pass	43	45	5	Pass	
	Cobalt	mg/kg	2	2	<2	0	Pass	<2	2	0	Pass	<2	<2	0	Pass	
	Copper	mg/kg	5	63	62	2	Pass	20	21	5	Pass	20	10	67	Pass 1	
	Lead	mg/kg	5	1550	1520	2	Pass	72	64	12	Pass	15	17	13	Pass	
	Manganese	mg/kg	5	98	88	11	Pass	51	74	37	Pass 1	106	84	23	Pass	
	Nickel	mg/kg	2	5	4	22	Pass	4	5	22	Pass	5	4	22	Pass	
	Zinc	mg/kg	5	3380	3170	6	Pass	74	111	40	Fail	26	24	8	Pass	
	Vanadium	mg/kg	5	57	66	15	Pass	73	80	9	Pass	79	72	9	Pass	
TPH - Semivolatile Fraction	>C10-C16 fraction	mg/kg	50	<50	<50	0	Pass	<50	<50	0	Pass	<50	<50	0	Pass	
	>C16-C34 fraction	mg/kg	100	<100	<100	0	Pass	<100	<100	0	Pass	<100	<100	0	Pass	
	>C34-C40 fraction	mg/kg	100	<100	<100	0	Pass	<100	<100	0	Pass	<100	<100	0	Pass	
	>C10-C40 fraction (sum)	mg/kg	50	<50	<50	0	Pass	<50	<50	0	Pass	<50	<50	0	Pass	
	C10-C14 fraction	mg/kg	50	<50	<50	0	Pass	<50	<50	0	Pass	<50	<50	0	Pass	
	C15-C28 fraction	mg/kg	100	<100	<100	0	Pass	<100	<100	0	Pass	<100	<100	0	Pass	
	C29-C36 fraction	mg/kg	100	<100	<100	0	Pass	<100	<100	0	Pass	<100	<100	0	Pass	
	C10-C36 fraction (sum)	mg/kg	50	<50	<50	0	Pass	<50	<50	0	Pass	<50	<50	0	Pass	
TPH Volatiles/BTEX	C6-C10 fraction (F1 minus BTEX)	mg/kg	10	<10	<10	0	Pass	<10	<10	0	Pass	<10	<10	0	Pass	
	Benzene	mg/kg	0.2	<0.2	<0.2	0	Pass	<0.2	<0.2	0	Pass	<0.2	<0.2	0	Pass	
	C6-C10 fraction	mg/kg	10	<10	<10	0	Pass	<10	<10	0	Pass	<10	<10	0	Pass	
	Naphthalene (VOC)	mg/kg	1	<1	<1	0	Pass	<1	<1	0	Pass	<1	<1	0	Pass	
	Toluene	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	Ethylbenzene	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	m&p-Xylene	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	o-Xylene	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	Total Xylenes	mg/kg	0.5	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	<0.5	<0.5	0	Pass	
	C6-C9 fraction	mg/kg	10	<10	<10	0	Pass	<10	<10	0	Pass	<10	<10	0	Pass	
	Total BTEX	mg/kg	0.2	<0.2	<0.2	0	Pass	<0.2	<0.2	0	Pass	<0.2	<0.2	0	Pass	

Pass RPD <= 30%
Pass-1 RPD > 30%, Analysis result < 10 times LOR
Pass-2 RPD <= 50%, Analysis result > 10 times LOR and < 20 times LOR

Site: Waterfront Precinct
 Project No.: 42213719
 Project Manager: Tim Smith
 Matrix: Soil
 Laboratory: ALS/Envirolab
 Lab Batch Nos: ES1302091 / EB1302398
 Sample Dates: 29/01/2013

Field Triplicates (SOIL)

SDG	ES1302091	EB1302398		
Sample ID	SP02B_19_290113	DUP_04_290113	RPD	Category1
Date Sampled	29/01/2013	29/01/2013		

Chem_Group	ChemName	Units	LOR				
Hexavalent Chromium by Alkaline	Chromium (hexavalent)	mg/kg	0.5	<0.5	<0.5	0	Pass
Moisture Content	Moisture Content	%	1	16.8	11.4	38	Pass 2
PAH/Phenols (SIM)	Naphthalene	mg/kg	0.5	<0.5	<0.5	0	Pass
	Phenol	mg/kg	0.5	<0.5	<0.5	0	Pass
	2-Chlorophenol	mg/kg	0.5	<0.5	<0.5	0	Pass
	2-Methylphenol (o-Cresol)	mg/kg	0.5	<0.5	<0.5	0	Pass
	3-&4-Methylphenol (m&p-Cresol)	mg/kg	1	<1	<1	0	Pass
	Acenaphthylene	mg/kg	0.5	<0.5	<0.5	0	Pass
	2-Nitrophenol	mg/kg	0.5	<0.5	<0.5	0	Pass
	Acenaphthene	mg/kg	0.5	<0.5	<0.5	0	Pass
	2,4-Dichlorophenol	mg/kg	0.5	<0.5	<0.5	0	Pass
	2,4-Dimethylphenol	mg/kg	0.5	<0.5	<0.5	0	Pass
	2,6-Dichlorophenol	mg/kg	0.5	<0.5	<0.5	0	Pass
	4-Chloro-3-methylphenol	mg/kg	0.5	<0.5	<0.5	0	Pass
	Anthracene	mg/kg	0.5	<0.5	<0.5	0	Pass
	Fluorene	mg/kg	0.5	<0.5	<0.5	0	Pass
	2,4,6-Trichlorophenol	mg/kg	0.5	<0.5	<0.5	0	Pass
	2,4,5-Trichlorophenol	mg/kg	0.5	<0.5	<0.5	0	Pass
	Phenanthrene	mg/kg	0.5	<0.5	<0.5	0	Pass
	Fluoranthene	mg/kg	0.5	<0.5	<0.5	0	Pass
	Benz(a)anthracene	mg/kg	0.5	<0.5	<0.5	0	Pass
	Benzo(b)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	Pass
	Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	Pass
	Pentachlorophenol	mg/kg	2	<2	<2	0	Pass
	Benzo(a)pyrene	mg/kg	0.5	<0.5	<0.5	0	Pass
	Benzo(a)pyrene TEQ	mg/kg	0.5				
	Chrysene	mg/kg	0.5	<0.5	<0.5	0	Pass
	Pyrene	mg/kg	0.5	<0.5	<0.5	0	Pass
	Benzo(g,h,i)perylene	mg/kg	0.5	<0.5	<0.5	0	Pass
	Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	<0.5	0	Pass
	Indeno(1,2,3-cd)pyrene	mg/kg	0.5	<0.5	<0.5	0	Pass
	Sum of PAHs	mg/kg	0.5	<0.5	<0.5	0	Pass
Pesticides by GCMS	Aldrin	mg/kg	0.05	<0.05	<0.2	0	Pass
	Dieldrin	mg/kg	0.05	<0.05	<0.2	0	Pass

Site: Waterfront Precinct
Project No.: 42213719
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Sample Dates: 29/01/2013

Field Triplicates (SOIL)

SDG	ES1302091	EB1302398		
Sample ID	SP02B_19_290113	DUP_04_290113	RPD	Category1
Date Sampled	29/01/2013	29/01/2013		

Chem_Group	ChemName	Units	LOR				
	a-BHC	mg/kg	0.05	<0.05	<0.2	0	Pass
	b-BHC	mg/kg	0.05	<0.05	<0.2	0	Pass
	d-BHC	mg/kg	0.05	<0.05	<0.2	0	Pass
	g-BHC (Lindane)	mg/kg	0.05	<0.05	<0.2	0	Pass
	cis-Chlordane	mg/kg	0.05	<0.05	<0.2	0	Pass
	trans-Chlordane	mg/kg	0.05	<0.05	<0.2	0	Pass
	DDD	mg/kg	0.05	<0.05	<0.2	0	Pass
	DDE	mg/kg	0.05	<0.05	<0.2	0	Pass
	DDT	mg/kg	0.2	<0.2	<0.8	0	Pass
	Endosulfan 1	mg/kg	0.05	<0.05	<0.2	0	Pass
	Endosulfan 2	mg/kg	0.05	<0.05	<0.2	0	Pass
	Endosulfan sulfate	mg/kg	0.05	<0.05	<0.2	0	Pass
	Endrin	mg/kg	0.05	<0.05	<0.2	0	Pass
	Endrin aldehyde	mg/kg	0.05	<0.05	<0.2	0	Pass
	Endrin ketone	mg/kg	0.05	<0.05	<0.2	0	Pass
	Heptachlor	mg/kg	0.05	<0.05	<0.2	0	Pass
	Heptachlor epoxide	mg/kg	0.05	<0.05	<0.2	0	Pass
	Hexachlorobenzene (HCB)	mg/kg	0.05	<0.05	<0.2	0	Pass
	Methoxychlor	mg/kg	0.2	<0.2	<0.8	0	Pass
Polychlorinated Biphenyls (PCB)	Polychlorinated Biphenyls	mg/kg	0.1	<0.1	<0.4	0	Pass
Total Mercury by FIMS	Mercury	mg/kg	0.1	<0.1	<0.1	0	Pass
Total Metals by ICP-AES	Arsenic	mg/kg	5	8	12	40	Pass
	Barium	mg/kg	10	100	240	82	Fail
	Beryllium	mg/kg	1	<1	<1	0	Pass
	Cadmium	mg/kg	1	<1	2	67	Pass 1
	Chromium	mg/kg	2	34	69	68	Fail
	Cobalt	mg/kg	2	<2	2	0	Pass
	Copper	mg/kg	5	20	24	18	Pass
	Lead	mg/kg	5	67	92	31	Pass 2
	Manganese	mg/kg	5	68	74	8	Pass
	Nickel	mg/kg	2	4	10	86	Pass 1
	Zinc	mg/kg	5	172	187	8	Pass
	Vanadium	mg/kg	5	78	86	10	Pass

Site: Waterfront Precinct
 Project No.: 42213719
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 Lab Batch Nos: ES1302091 / EB1302398
 Sample Dates: 29/01/2013

Field Triplicates (SOIL)

SDG	ES1302091	EB1302398		
Sample ID	SP02B_19_290113	DUP_04_290113	RPD	Category1
Date Sampled	29/01/2013	29/01/2013		

Chem_Group	ChemName	Units	LOR				
TPH - Semivolatile Fraction	>C10-C16 fraction	mg/kg	50	<50	<50	0	Pass
	>C16-C34 fraction	mg/kg	100	<100	<100	0	Pass
	>C34-C40 fraction	mg/kg	100	<100	<100	0	Pass
	>C10-C40 fraction (sum)	mg/kg	50	<50	<50	0	Pass
	C10-C14 fraction	mg/kg	50	<50	<50	0	Pass
	C15-C28 fraction	mg/kg	100	<100	<100	0	Pass
	C29-C36 fraction	mg/kg	100	<100	<100	0	Pass
	C10-C36 fraction (sum)	mg/kg	50	<50	<50	0	Pass
							Pass
TPH Volatiles/BTEX	C6-C10 fraction (F1 minus BTEX)	mg/kg	10	<10	<10	0	Pass
	Benzene	mg/kg	0.2	<0.2	<0.2	0	Pass
	C6-C10 fraction	mg/kg	10	<10	<10	0	Pass
	Naphthalene (VOC)	mg/kg	1	<1	<1	0	Pass
	Toluene	mg/kg	0.5	<0.5	<0.5	0	Pass
	Ethylbenzene	mg/kg	0.5	<0.5	<0.5	0	Pass
	m&p-Xylene	mg/kg	0.5	<0.5	<0.5	0	Pass
	o-Xylene	mg/kg	0.5	<0.5	<0.5	0	Pass
	Total Xylenes	mg/kg	0.5	<0.5	<0.5	0	Pass
	C6-C9 fraction	mg/kg	10	<10	<10	0	Pass
	Total BTEX	mg/kg	0.2	<0.2	<0.2	0	Pass

Pass RPD <= 30%

Pass-1 RPD > 30%, Analysis result < 10 times LOR

Pass-2 RPD <= 50%, Analysis result > 10 times LOR and < 20 times LOR

Attachment D

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			WorkSheet.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Arsenic											
10												
11	General Statistics											
12	Number of Valid Data				23		Number of Detected Data				18	
13	Number of Distinct Detected Data				10		Number of Non-Detect Data				5	
14							Percent Non-Detects				21.74%	
15												
16	Raw Statistics					Log-transformed Statistics						
17	Minimum Detected				5		Minimum Detected				1.609	
18	Maximum Detected				53		Maximum Detected				3.97	
19	Mean of Detected				14.39		Mean of Detected				2.338	
20	SD of Detected				15.03		SD of Detected				0.735	
21	Minimum Non-Detect				5		Minimum Non-Detect				1.609	
22	Maximum Non-Detect				5		Maximum Non-Detect				1.609	
23												
24												
25	UCL Statistics											
26	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
27	Shapiro Wilk Test Statistic				0.61		Shapiro Wilk Test Statistic				0.767	
28	5% Shapiro Wilk Critical Value				0.897		5% Shapiro Wilk Critical Value				0.897	
29	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level						
30												
31	Assuming Normal Distribution					Assuming Lognormal Distribution						
32	DL/2 Substitution Method						DL/2 Substitution Method					
33	Mean				11.8		Mean				2.029	
34	SD				14.13		SD				0.882	
35	95% DL/2 (t) UCL				16.86		95% H-Stat (DL/2) UCL				17.54	
36												
37	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
38	Mean				9.932		Mean in Log Scale				1.985	
39	SD				15.97		SD in Log Scale				0.954	
40	95% MLE (t) UCL				15.65		Mean in Original Scale				11.72	
41	95% MLE (Tiku) UCL				15.6		SD in Original Scale				14.19	
42							95% t UCL				16.8	
43							95% Percentile Bootstrap UCL				16.82	
44							95% BCA Bootstrap UCL				18.47	
45							95% H UCL				18.94	
46												
47	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						
48	k star (bias corrected)				1.43		Data do not follow a Discernable Distribution (0.05)					
49	Theta Star				10.06							
50	nu star				51.47							
51												
52	A-D Test Statistic				2.38		Nonparametric Statistics					
53	5% A-D Critical Value				0.755		Kaplan-Meier (KM) Method					
54	K-S Test Statistic				0.755		Mean				12.35	
55	5% K-S Critical Value				0.207		SD				13.49	

	A	B	C	D	E	F	G	H	I	J	K	L	
56	Data not Gamma Distributed at 5% Significance Level						SE of Mean						2.894
57							95% KM (t) UCL						17.32
58	Assuming Gamma Distribution						95% KM (z) UCL						17.11
59	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL						17.13
60	Minimum					0.000001	95% KM (bootstrap t) UCL						20.94
61	Maximum					53	95% KM (BCA) UCL						17.22
62	Mean					11.26	95% KM (Percentile Bootstrap) UCL						17.43
63	Median					7	95% KM (Chebyshev) UCL						24.96
64	SD					14.54	97.5% KM (Chebyshev) UCL						30.42
65	k star					0.206	99% KM (Chebyshev) UCL						41.15
66	Theta star					54.55							
67	Nu star					9.497	Potential UCLs to Use						
68	AppChi2					3.63	95% KM (BCA) UCL						17.22
69	95% Gamma Approximate UCL (Use when n >= 40)					29.46							
70	95% Adjusted Gamma UCL (Use when n < 40)					31.73							
71	Note: DL/2 is not a recommended method.												
72													
73	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
74	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).												
75	For additional insight, the user may want to consult a statistician.												
76													
77													
78	Barium												
79													
80	General Statistics												
81	Number of Valid Observations					23	Number of Distinct Observations					18	
82													
83	Raw Statistics						Log-transformed Statistics						
84	Minimum					10	Minimum of Log Data					2.303	
85	Maximum					540	Maximum of Log Data					6.292	
86	Mean					161.3	Mean of log Data					4.682	
87	Geometric Mean					107.9	SD of log Data					0.966	
88	Median					100							
89	SD					151.2							
90	Std. Error of Mean					31.52							
91	Coefficient of Variation					0.937							
92	Skewness					1.48							
93													
94	Relevant UCL Statistics												
95	Normal Distribution Test						Lognormal Distribution Test						
96	Shapiro Wilk Test Statistic					0.78	Shapiro Wilk Test Statistic					0.95	
97	Shapiro Wilk Critical Value					0.914	Shapiro Wilk Critical Value					0.914	
98	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
99													
100	Assuming Normal Distribution						Assuming Lognormal Distribution						
101	95% Student's-t UCL					215.4	95% H-UCL					287.1	
102	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL						332.5
103	95% Adjusted-CLT UCL (Chen-1995)					223.5	97.5% Chebyshev (MVUE) UCL					403.9	
104	95% Modified-t UCL (Johnson-1978)					217	99% Chebyshev (MVUE) UCL					544.2	
105													
106	Gamma Distribution Test						Data Distribution						
107	k star (bias corrected)					1.236	Data appear Gamma Distributed at 5% Significance Level						
108	Theta Star					130.6							
109	MLE of Mean					161.3							
110	MLE of Standard Deviation					145.1							

	A	B	C	D	E	F	G	H	I	J	K	L	
111	nu star					56.83							
112	Approximate Chi Square Value (.05)					40.51	Nonparametric Statistics						
113	Adjusted Level of Significance					0.0389	95% CLT UCL					213.1	
114	Adjusted Chi Square Value					39.51	95% Jackknife UCL					215.4	
115							95% Standard Bootstrap UCL					213.4	
116	Anderson-Darling Test Statistic					0.721	95% Bootstrap-t UCL					234.3	
117	Anderson-Darling 5% Critical Value					0.762	95% Hall's Bootstrap UCL					218.7	
118	Kolmogorov-Smirnov Test Statistic					0.178	95% Percentile Bootstrap UCL					213	
119	Kolmogorov-Smirnov 5% Critical Value					0.185	95% BCA Bootstrap UCL					219.6	
120	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					298.7	
121							97.5% Chebyshev(Mean, Sd) UCL					358.1	
122	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					474.9	
123	95% Approximate Gamma UCL (Use when n >= 40)					226.3							
124	95% Adjusted Gamma UCL (Use when n < 40)					232.1							
125													
126	Potential UCL to Use						Use 95% Approximate Gamma UCL					226.3	
127													
128	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
129	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
130	and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.												
131													
132													
133	Chromium												
134													
135	General Statistics												
136	Number of Valid Observations					23	Number of Distinct Observations					21	
137													
138	Raw Statistics						Log-transformed Statistics						
139	Minimum					21	Minimum of Log Data					3.045	
140	Maximum					84	Maximum of Log Data					4.431	
141	Mean					43.74	Mean of log Data					3.71	
142	Geometric Mean					40.87	SD of log Data					0.37	
143	Median					38							
144	SD					17.28							
145	Std. Error of Mean					3.604							
146	Coefficient of Variation					0.395							
147	Skewness					1.027							
148													
149	Relevant UCL Statistics												
150	Normal Distribution Test						Lognormal Distribution Test						
151	Shapiro Wilk Test Statistic					0.879	Shapiro Wilk Test Statistic					0.951	
152	Shapiro Wilk Critical Value					0.914	Shapiro Wilk Critical Value					0.914	
153	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
154													
155	Assuming Normal Distribution						Assuming Lognormal Distribution						
156	95% Student's-t UCL					49.93	95% H-UCL					50.73	
157	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					58.64	
158	95% Adjusted-CLT UCL (Chen-1995)					50.49	97.5% Chebyshev (MVUE) UCL					65.13	
159	95% Modified-t UCL (Johnson-1978)					50.06	99% Chebyshev (MVUE) UCL					77.88	
160													
161	Gamma Distribution Test						Data Distribution						
162	k star (bias corrected)					6.58	Data appear Gamma Distributed at 5% Significance Level						
163	Theta Star					6.648							
164	MLE of Mean					43.74							
165	MLE of Standard Deviation					17.05							

	A	B	C	D	E	F	G	H	I	J	K	L	
166	nu star					302.7							
167	Approximate Chi Square Value (.05)					263.4	Nonparametric Statistics						
168	Adjusted Level of Significance					0.0389	95% CLT UCL					49.67	
169	Adjusted Chi Square Value					260.7	95% Jackknife UCL					49.93	
170							95% Standard Bootstrap UCL					49.44	
171	Anderson-Darling Test Statistic					0.711	95% Bootstrap-t UCL					51.53	
172	Anderson-Darling 5% Critical Value					0.745	95% Hall's Bootstrap UCL					50.32	
173	Kolmogorov-Smirnov Test Statistic					0.165	95% Percentile Bootstrap UCL					50.04	
174	Kolmogorov-Smirnov 5% Critical Value					0.182	95% BCA Bootstrap UCL					49.74	
175	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					59.45	
176							97.5% Chebyshev(Mean, Sd) UCL					66.25	
177	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					79.6	
178	95% Approximate Gamma UCL (Use when n >= 40)					50.27							
179	95% Adjusted Gamma UCL (Use when n < 40)					50.78							
180													
181	Potential UCL to Use						Use 95% Approximate Gamma UCL					50.27	
182													
183	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
184	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
185	and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.												
186													
187													
188	Copper												
189													
190	General Statistics												
191	Number of Valid Data					23	Number of Detected Data					22	
192	Number of Distinct Detected Data					18	Number of Non-Detect Data					1	
193							Percent Non-Detects					4.35%	
194													
195	Raw Statistics						Log-transformed Statistics						
196	Minimum Detected					5	Minimum Detected					1.609	
197	Maximum Detected					186	Maximum Detected					5.226	
198	Mean of Detected					30.32	Mean of Detected					3.047	
199	SD of Detected					38.1	SD of Detected					0.773	
200	Minimum Non-Detect					5	Minimum Non-Detect					1.609	
201	Maximum Non-Detect					5	Maximum Non-Detect					1.609	
202													
203													
204	UCL Statistics												
205	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only						
206	Shapiro Wilk Test Statistic					0.541	Shapiro Wilk Test Statistic					0.927	
207	5% Shapiro Wilk Critical Value					0.911	5% Shapiro Wilk Critical Value					0.911	
208	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
209													
210	Assuming Normal Distribution						Assuming Lognormal Distribution						
211	DL/2 Substitution Method						DL/2 Substitution Method						
212	Mean					29.11	Mean					2.954	
213	SD					37.67	SD					0.877	
214	95% DL/2 (t) UCL					42.6	95% H-Stat (DL/2) UCL					43.88	
215													
216	Maximum Likelihood Estimate(MLE) Method						Log ROS Method						
217	Mean					28.21	Mean in Log Scale					2.966	
218	SD					37.93	SD in Log Scale					0.849	
219	95% MLE (t) UCL					41.79	Mean in Original Scale					29.14	
220	95% MLE (Tiku) UCL					40.71	SD in Original Scale					37.64	

	A	B	C	D	E	F	G	H	I	J	K	L
221							95% t UCL					42.62
222							95% Percentile Bootstrap UCL					43.36
223							95% BCA Bootstrap UCL					53.39
224							95% H UCL					42.5
225												
226	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
227	k star (bias corrected)					1.339	Data appear Lognormal at 5% Significance Level					
228	Theta Star					22.64						
229	nu star					58.93						
230												
231	A-D Test Statistic					1.425	Nonparametric Statistics					
232	5% A-D Critical Value					0.759	Kaplan-Meier (KM) Method					
233	K-S Test Statistic					0.759	Mean					29.22
234	5% K-S Critical Value					0.189	SD					36.77
235	Data not Gamma Distributed at 5% Significance Level						SE of Mean					7.847
236							95% KM (t) UCL					42.69
237	Assuming Gamma Distribution						95% KM (z) UCL					42.12
238	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					42.55
239	Minimum					0.000001	95% KM (bootstrap t) UCL					62.75
240	Maximum					186	95% KM (BCA) UCL					44.7
241	Mean					29	95% KM (Percentile Bootstrap) UCL					43.57
242	Median					20	95% KM (Chebyshev) UCL					63.42
243	SD					37.75	97.5% KM (Chebyshev) UCL					78.22
244	k star					0.54	99% KM (Chebyshev) UCL					107.3
245	Theta star					53.66						
246	Nu star					24.86	Potential UCLs to Use					
247	AppChi2					14.51	95% KM (Chebyshev) UCL					63.42
248	95% Gamma Approximate UCL (Use when n >= 40)					49.7						
249	95% Adjusted Gamma UCL (Use when n < 40)					51.75						
250	Note: DL/2 is not a recommended method.											
251												
252	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
253	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
254	For additional insight, the user may want to consult a statistician.											
255												
256												
257	Lead											
258												
259	General Statistics											
260	Number of Valid Observations					23	Number of Distinct Observations					20
261												
262	Raw Statistics						Log-transformed Statistics					
263	Minimum					8	Minimum of Log Data					2.079
264	Maximum					1550	Maximum of Log Data					7.346
265	Mean					225.5	Mean of log Data					3.997
266	Geometric Mean					54.44	SD of log Data					1.558
267	Median					38						
268	SD					463.6						
269	Std. Error of Mean					96.66						
270	Coefficient of Variation					2.056						
271	Skewness					2.431						
272												
273	Relevant UCL Statistics											
274	Normal Distribution Test						Lognormal Distribution Test					
275	Shapiro Wilk Test Statistic					0.504	Shapiro Wilk Test Statistic					0.881

	A	B	C	D	E	F	G	H	I	J	K	L
276	Shapiro Wilk Critical Value					0.914	Shapiro Wilk Critical Value					0.914
277	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
278												
279	Assuming Normal Distribution						Assuming Lognormal Distribution					
280	95% Student's-t UCL					391.5	95% H-UCL					555
281	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					452.6
282	95% Adjusted-CLT UCL (Chen-1995)					436.8	97.5% Chebyshev (MVUE) UCL					576.9
283	95% Modified-t UCL (Johnson-1978)					399.6	99% Chebyshev (MVUE) UCL					821.2
284												
285	Gamma Distribution Test						Data Distribution					
286	k star (bias corrected)					0.424	Data do not follow a Discernable Distribution (0.05)					
287	Theta Star					532.3						
288	MLE of Mean					225.5						
289	MLE of Standard Deviation					346.4						
290	nu star					19.49						
291	Approximate Chi Square Value (.05)					10.47	Nonparametric Statistics					
292	Adjusted Level of Significance					0.0389	95% CLT UCL					384.5
293	Adjusted Chi Square Value					9.994	95% Jackknife UCL					391.5
294							95% Standard Bootstrap UCL					379.3
295	Anderson-Darling Test Statistic					2.448	95% Bootstrap-t UCL					554.1
296	Anderson-Darling 5% Critical Value					0.815	95% Hall's Bootstrap UCL					369.1
297	Kolmogorov-Smirnov Test Statistic					0.29	95% Percentile Bootstrap UCL					389.3
298	Kolmogorov-Smirnov 5% Critical Value					0.193	95% BCA Bootstrap UCL					435.2
299	Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					646.8
300							97.5% Chebyshev(Mean, Sd) UCL					829.1
301	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					1187
302	95% Approximate Gamma UCL (Use when n >= 40)					419.5						
303	95% Adjusted Gamma UCL (Use when n < 40)					439.6						
304												
305	Potential UCL to Use						Use 95% Chebyshev (Mean, Sd) UCL					646.8
306												
307	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
308	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
309	and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.											
310												
311												
312	Manganese											
313												
314	General Statistics											
315	Number of Valid Observations					23	Number of Distinct Observations					17
316												
317	Raw Statistics						Log-transformed Statistics					
318	Minimum					51	Minimum of Log Data					3.932
319	Maximum					136	Maximum of Log Data					4.913
320	Mean					81.91	Mean of log Data					4.379
321	Geometric Mean					79.77	SD of log Data					0.236
322	Median					84						
323	SD					19.5						
324	Std. Error of Mean					4.065						
325	Coefficient of Variation					0.238						
326	Skewness					0.702						
327												
328	Relevant UCL Statistics											
329	Normal Distribution Test						Lognormal Distribution Test					
330	Shapiro Wilk Test Statistic					0.956	Shapiro Wilk Test Statistic					0.979

	A	B	C	D	E	F	G	H	I	J	K	L
331	Shapiro Wilk Critical Value					0.914	Shapiro Wilk Critical Value					0.914
332	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
333												
334	Assuming Normal Distribution						Assuming Lognormal Distribution					
335	95% Student's-t UCL					88.89	95% H-UCL					89.71
336	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					99.63
337	95% Adjusted-CLT UCL (Chen-1995)					89.24	97.5% Chebyshev (MVUE) UCL					107.3
338	95% Modified-t UCL (Johnson-1978)					88.99	99% Chebyshev (MVUE) UCL					122.4
339												
340	Gamma Distribution Test						Data Distribution					
341	k star (bias corrected)					16.55	Data appear Normal at 5% Significance Level					
342	Theta Star					4.949						
343	MLE of Mean					81.91						
344	MLE of Standard Deviation					20.13						
345	nu star					761.4						
346	Approximate Chi Square Value (.05)					698.4	Nonparametric Statistics					
347	Adjusted Level of Significance					0.0389	95% CLT UCL					88.6
348	Adjusted Chi Square Value					694	95% Jackknife UCL					88.89
349							95% Standard Bootstrap UCL					88.41
350	Anderson-Darling Test Statistic					0.215	95% Bootstrap-t UCL					89.39
351	Anderson-Darling 5% Critical Value					0.742	95% Hall's Bootstrap UCL					90.14
352	Kolmogorov-Smirnov Test Statistic					0.0957	95% Percentile Bootstrap UCL					88.09
353	Kolmogorov-Smirnov 5% Critical Value					0.181	95% BCA Bootstrap UCL					89.3
354	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					99.63
355							97.5% Chebyshev(Mean, Sd) UCL					107.3
356	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					122.4
357	95% Approximate Gamma UCL (Use when n >= 40)					89.31						
358	95% Adjusted Gamma UCL (Use when n < 40)					89.87						
359												
360	Potential UCL to Use						Use 95% Student's-t UCL					88.89
361												
362	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
363	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
364	and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.											
365												
366												
367	Nickel											
368												
369	General Statistics											
370	Number of Valid Data					23	Number of Detected Data					21
371	Number of Distinct Detected Data					4	Number of Non-Detect Data					2
372							Percent Non-Detects					8.70%
373												
374	Raw Statistics						Log-transformed Statistics					
375	Minimum Detected					3	Minimum Detected					1.099
376	Maximum Detected					6	Maximum Detected					1.792
377	Mean of Detected					4.381	Mean of Detected					1.463
378	SD of Detected					0.74	SD of Detected					0.174
379	Minimum Non-Detect					2	Minimum Non-Detect					0.693
380	Maximum Non-Detect					2	Maximum Non-Detect					0.693
381												
382												
383	Warning: There are only 4 Distinct Detected Values in this data											
384	Note: It should be noted that even though bootstrap may be performed on this data set											
385	the resulting calculations may not be reliable enough to draw conclusions											

	A	B	C	D	E	F	G	H	I	J	K	L	
386													
387	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.												
388													
389													
390	UCL Statistics												
391	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only							
392	Shapiro Wilk Test Statistic					0.853	Shapiro Wilk Test Statistic					0.843	
393	5% Shapiro Wilk Critical Value					0.908	5% Shapiro Wilk Critical Value					0.908	
394	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level							
395													
396	Assuming Normal Distribution					Assuming Lognormal Distribution							
397	DL/2 Substitution Method						DL/2 Substitution Method						
398	Mean					4.087	Mean					1.336	
399	SD					1.203	SD					0.453	
400	95% DL/2 (t) UCL					4.518	95% H-Stat (DL/2) UCL					5.08	
401													
402	Maximum Likelihood Estimate(MLE) Method						Log ROS Method						
403	Mean					4.14	Mean in Log Scale					1.431	
404	SD					1.046	SD in Log Scale					0.198	
405	95% MLE (t) UCL					4.515	Mean in Original Scale					4.258	
406	95% MLE (Tiku) UCL					4.529	SD in Original Scale					0.815	
407							95% t UCL					4.55	
408							95% Percentile Bootstrap UCL					4.56	
409							95% BCA Bootstrap UCL					4.522	
410							95% H UCL					4.593	
411													
412	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only							
413	k star (bias corrected)					30.67	Data do not follow a Discernable Distribution (0.05)						
414	Theta Star					0.143							
415	nu star					1288							
416													
417	A-D Test Statistic					1.673	Nonparametric Statistics						
418	5% A-D Critical Value					0.742	Kaplan-Meier (KM) Method						
419	K-S Test Statistic					0.742	Mean					4.261	
420	5% K-S Critical Value					0.189	SD					0.792	
421	Data not Gamma Distributed at 5% Significance Level					SE of Mean					0.169		
422							95% KM (t) UCL					4.552	
423	Assuming Gamma Distribution					95% KM (z) UCL					4.539		
424	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					4.551	
425	Minimum					1.764	95% KM (bootstrap t) UCL					4.547	
426	Maximum					6	95% KM (BCA) UCL					4.522	
427	Mean					4.177	95% KM (Percentile Bootstrap) UCL					4.565	
428	Median					4	95% KM (Chebyshev) UCL					4.999	
429	SD					0.981	97.5% KM (Chebyshev) UCL					5.318	
430	k star					13.49	99% KM (Chebyshev) UCL					5.945	
431	Theta star					0.31							
432	Nu star					620.7	Potential UCLs to Use						
433	AppChi2					563.9	95% KM (Chebyshev) UCL					4.999	
434	95% Gamma Approximate UCL (Use when n >= 40)					4.597							
435	95% Adjusted Gamma UCL (Use when n < 40)					4.63							
436	Note: DL/2 is not a recommended method.												
437													
438	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
439	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).												
440	For additional insight, the user may want to consult a statistician.												

	A	B	C	D	E	F	G	H	I	J	K	L
441												
442												
443	Zinc											
444												
445	General Statistics											
446	Number of Valid Data					23	Number of Detected Data					22
447	Number of Distinct Detected Data					22	Number of Non-Detect Data					1
448							Percent Non-Detects					4.35%
449												
450	Raw Statistics					Log-transformed Statistics						
451	Minimum Detected					8	Minimum Detected					2.079
452	Maximum Detected					3380	Maximum Detected					8.126
453	Mean of Detected					442.3	Mean of Detected					4.589
454	SD of Detected					963.1	SD of Detected					1.621
455	Minimum Non-Detect					5	Minimum Non-Detect					1.609
456	Maximum Non-Detect					5	Maximum Non-Detect					1.609
457												
458												
459	UCL Statistics											
460	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
461	Shapiro Wilk Test Statistic					0.482	Shapiro Wilk Test Statistic					0.924
462	5% Shapiro Wilk Critical Value					0.911	5% Shapiro Wilk Critical Value					0.911
463	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
464												
465	Assuming Normal Distribution					Assuming Lognormal Distribution						
466	DL/2 Substitution Method						DL/2 Substitution Method					
467	Mean					423.2	Mean					4.429
468	SD					945.5	SD					1.759
469	95% DL/2 (t) UCL					761.7	95% H-Stat (DL/2) UCL					1555
470												
471	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
472	Mean					395.8	Mean in Log Scale					4.417
473	SD					951.8	SD in Log Scale					1.785
474	95% MLE (t) UCL					736.5	Mean in Original Scale					423.2
475	95% MLE (Tiku) UCL					703.6	SD in Original Scale					945.5
476							95% t UCL					761.7
477							95% Percentile Bootstrap UCL					780.3
478							95% BCA Bootstrap UCL					898.1
479							95% H UCL					1669
480												
481	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						
482	k star (bias corrected)					0.404	Data appear Lognormal at 5% Significance Level					
483	Theta Star					1095						
484	nu star					17.77						
485												
486	A-D Test Statistic					2.155	Nonparametric Statistics					
487	5% A-D Critical Value					0.819	Kaplan-Meier (KM) Method					
488	K-S Test Statistic					0.819	Mean					423.4
489	5% K-S Critical Value					0.198	SD					924.6
490	Data not Gamma Distributed at 5% Significance Level					SE of Mean					197.3	
491							95% KM (t) UCL					762.3
492	Assuming Gamma Distribution					95% KM (z) UCL					748	
493	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					761.7
494	Minimum					0.000001	95% KM (bootstrap t) UCL					1388
495	Maximum					3380	95% KM (BCA) UCL					759.4

	A	B	C	D	E	F	G	H	I	J	K	L	
496	Mean					423.1	95% KM (Percentile Bootstrap) UCL					776.3	
497	Median					74	95% KM (Chebyshev) UCL					1284	
498	SD					945.5	97.5% KM (Chebyshev) UCL					1656	
499	k star					0.294	99% KM (Chebyshev) UCL					2387	
500	Theta star					1440							
501	Nu star					13.52	Potential UCLs to Use						
502	AppChi2					6.241	99% KM (Chebyshev) UCL					2387	
503	95% Gamma Approximate UCL (Use when n >= 40)					916.2							
504	95% Adjusted Gamma UCL (Use when n < 40)					971.7							
505	Note: DL/2 is not a recommended method.												
506													
507	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
508	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).												
509	For additional insight, the user may want to consult a statistician.												
510													
511													
512	Vanadium												
513													
514	General Statistics												
515	Number of Valid Observations					23	Number of Distinct Observations					20	
516													
517	Raw Statistics					Log-transformed Statistics							
518	Minimum					39	Minimum of Log Data					3.664	
519	Maximum					192	Maximum of Log Data					5.257	
520	Mean					79.87	Mean of log Data					4.296	
521	Geometric Mean					73.44	SD of log Data					0.395	
522	Median					72							
523	SD					38.53							
524	Std. Error of Mean					8.034							
525	Coefficient of Variation					0.482							
526	Skewness					1.963							
527													
528	Relevant UCL Statistics												
529	Normal Distribution Test					Lognormal Distribution Test							
530	Shapiro Wilk Test Statistic					0.766	Shapiro Wilk Test Statistic					0.92	
531	Shapiro Wilk Critical Value					0.914	Shapiro Wilk Critical Value					0.914	
532	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level							
533													
534	Assuming Normal Distribution					Assuming Lognormal Distribution							
535	95% Student's-t UCL					93.66	95% H-UCL					93.1	
536	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					108.3		
537	95% Adjusted-CLT UCL (Chen-1995)					96.6	97.5% Chebyshev (MVUE) UCL					120.9	
538	95% Modified-t UCL (Johnson-1978)					94.21	99% Chebyshev (MVUE) UCL					145.6	
539													
540	Gamma Distribution Test					Data Distribution							
541	k star (bias corrected)					5.348	Data appear Lognormal at 5% Significance Level						
542	Theta Star					14.93							
543	MLE of Mean					79.87							
544	MLE of Standard Deviation					34.54							
545	nu star					246							
546	Approximate Chi Square Value (.05)					210.7	Nonparametric Statistics						
547	Adjusted Level of Significance					0.0389	95% CLT UCL					93.08	
548	Adjusted Chi Square Value					208.3	95% Jackknife UCL					93.66	
549							95% Standard Bootstrap UCL					92.86	
550	Anderson-Darling Test Statistic					1.035	95% Bootstrap-t UCL					100.5	

	A	B	C	D	E	F	G	H	I	J	K	L
551	Anderson-Darling 5% Critical Value					0.746	95% Hall's Bootstrap UCL					115.8
552	Kolmogorov-Smirnov Test Statistic					0.227	95% Percentile Bootstrap UCL					93.22
553	Kolmogorov-Smirnov 5% Critical Value					0.182	95% BCA Bootstrap UCL					97.74
554	Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					114.9
555							97.5% Chebyshev(Mean, Sd) UCL					130
556	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					159.8
557	95% Approximate Gamma UCL (Use when n >= 40)					93.26						
558	95% Adjusted Gamma UCL (Use when n < 40)					94.31						
559												
560	Potential UCL to Use						Use 95% Student's-t UCL					93.66
561							or 95% Modified-t UCL					94.21
562							or 95% H-UCL					93.1
563												
564	ProUCL computes and outputs H-statistic based UCLs for historical reasons only.											
565	H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.											
566	It is therefore recommended to avoid the use of H-statistic based 95% UCLs.											
567	Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.											
568												
569	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
570	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
571	and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.											
572												
573												
574	Cadmium											
575												
576	General Statistics											
577	Number of Valid Data					23	Number of Detected Data					6
578	Number of Distinct Detected Data					5	Number of Non-Detect Data					17
579							Percent Non-Detects					73.91%
580												
581	Raw Statistics						Log-transformed Statistics					
582	Minimum Detected					1	Minimum Detected					0
583	Maximum Detected					17	Maximum Detected					2.833
584	Mean of Detected					6.667	Mean of Detected					1.314
585	SD of Detected					6.831	SD of Detected					1.26
586	Minimum Non-Detect					1	Minimum Non-Detect					0
587	Maximum Non-Detect					1	Maximum Non-Detect					0
588												
589												
590	Warning: There are only 6 Detected Values in this data											
591	Note: It should be noted that even though bootstrap may be performed on this data set											
592	the resulting calculations may not be reliable enough to draw conclusions											
593												
594	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
595												
596												
597	UCL Statistics											
598	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
599	Shapiro Wilk Test Statistic					0.841	Shapiro Wilk Test Statistic					0.876
600	5% Shapiro Wilk Critical Value					0.788	5% Shapiro Wilk Critical Value					0.788
601	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
602												
603	Assuming Normal Distribution						Assuming Lognormal Distribution					
604	DL/2 Substitution Method						DL/2 Substitution Method					
605	Mean					2.109	Mean					-0.17

	A	B	C	D	E	F	G	H	I	J	K	L
606	SD					4.275	SD					1.083
607	95% DL/2 (t) UCL					3.639	95% H-Stat (DL/2) UCL					2.789
608												
609	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
610	MLE yields a negative mean						Mean in Log Scale					-2.469
611							SD in Log Scale					2.966
612							Mean in Original Scale					1.803
613							SD in Original Scale					4.398
614							95% t UCL					3.378
615							95% Percentile Bootstrap UCL					3.368
616							95% BCA Bootstrap UCL					4.136
617							95% H-UCL					253.9
618												
619	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
620	k star (bias corrected)					0.606	Data appear Normal at 5% Significance Level					
621	Theta Star					10.99						
622	nu star					7.278						
623												
624	A-D Test Statistic					0.422	Nonparametric Statistics					
625	5% A-D Critical Value					0.715	Kaplan-Meier (KM) Method					
626	K-S Test Statistic					0.715	Mean					2.478
627	5% K-S Critical Value					0.341	SD					4.042
628	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.923
629							95% KM (t) UCL					4.064
630	Assuming Gamma Distribution						95% KM (z) UCL					3.997
631	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					3.958
632	Minimum					0.000001	95% KM (bootstrap t) UCL					6.57
633	Maximum					17	95% KM (BCA) UCL					6.783
634	Mean					1.739	95% KM (Percentile Bootstrap) UCL					4.913
635	Median					0.000001	95% KM (Chebyshev) UCL					6.502
636	SD					4.423	97.5% KM (Chebyshev) UCL					8.244
637	k star					0.0986	99% KM (Chebyshev) UCL					11.66
638	Theta star					17.64						
639	Nu star					4.535	Potential UCLs to Use					
640	AppChi2					0.944	95% KM (t) UCL					4.064
641	95% Gamma Approximate UCL (Use when n >= 40)					8.358	95% KM (Percentile Bootstrap) UCL					4.913
642	95% Adjusted Gamma UCL (Use when n < 40)					9.46						
643	Note: DL/2 is not a recommended method.											
644												
645	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
646	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
647	For additional insight, the user may want to consult a statistician.											
648												
649												
650	Cobalt											
651												
652	General Statistics											
653	Number of Valid Data					23	Number of Detected Data					4
654	Number of Distinct Detected Data					1	Number of Non-Detect Data					19
655							Percent Non-Detects					82.61%
656												
657	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
658	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
659												
660	The data set for variable Cobalt was not processed!											