

CH2M HILL Groundwater Sampling Purge Sheet

Client: D of Sgd Project Number: 420094 Well ID: Mw02
 Field Team: MS Date: 1-4-11
 Field Equipment Calibrated: Yes (lab certified)

Purging Information

Start Time: 1645 End Time: —
 SWL (mbpvc): N/A PSH?: N/A PSH Thickness: N/A
 SWL (mbtc): 3.07 Depth of Bore (mbtoc): 8.55
 Bore Volume: 11L (55x2) Bore Radius: 50mm PID: —

Bore Volume Calculation:

Method of purging water: low flow micro purge Approx. Purging Depth: —
 Number of times purged: — Approx. Purging Rate (L/min): —

Time	Volume Purged	Temp °C	pH	Redox (mV)	EC(ms) $\mu S/cm$	DO (%) ppm	Comments (colour, odour, turbidity etc)
1652	8.6L	21.3	5.60	119	2013	1.71	light Brown. very turbid. slight sheen
1654	7L	21.2	5.62	114	2020	0.82	" n/odour "
1656	10.9L	21.2	5.67	108	2011	0.69	
		a					water quality metre battery flat at 16:58. sample taken

Purging should continue for a minimum of three bore volumes and stabilised measurements are achieved or until the bore purges dry.

Stabilised measurements for pH are within 0.1pH units; EC, redox and dissolved oxygen are within 10% and temperature is within 0.1 °C over three successive measurements.

Sampling Information

Start Time: 1659 End Time: 1730
 Method of sampling water: low flow micro purge Approx. Sampling Depth: 8m
 Depth to water at the completion of sampling (mbpvc): —

Time	Volume Remove	Temp °C	pH	Redox (mV)	EC(ms)	DO (%)	Comments (colour, odour, turbidity etc)
1659	11L	21.2	5.67	108	2011	0.69	as above

Containers	0.5L	1L	2*40ml	250 ml	250ml
Number					

QA DUP	<u>No</u>
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Field Equipment Decontaminated: Yes *Rinse sample taken after sampling Rinse*

Purged by: MS Signature: [Signature] Date: 1-4-11
 Sampled by: MS Signature: [Signature] Date: 1-4-11
 Checked by: MS Signature: [Signature] Date: 1-4-11

Appendix F
Laboratory Reports

CH2MHILL ACN 060 070 892
CHAIN OF CUSTODY RECORD

Level 7, 9 Help Street, Chotswood, NSW 2067 Australia Tel (61 2) 9950 0200 Fax (61 2) 9950 0600

Subcon / Forward Lab / Split WO
Lab / Analysis: Asbestos / Newcastle
Organised By / Date: _____
Relinquished By / Date: _____

COC # **2031**

Project # 420094.01.01		Purchase Order # 54/570/10		Connote / Courier ES1106283		Requested Analytical Method #		QA REQUIREMENTS	
Project Name University of Sydney				WO No: ES1106283				Matrix Spike ☒ Yes ☐ No Matrix Duplicate ☒ Yes ☐ No Laboratory Duplicate ☒ Yes ☐ No Lab Blank ☒ Yes ☐ No Surrogate Spike ☒ Yes ☐ No RPDs ☒ Yes ☐ No Spike Recovery Data ☒ Yes ☐ No	
Company Name CH2M HILL				Attach By PO / Internal Sheet: _____					
Project Manager or Contact & Phone # 9950 0220 EMMA WATSON		Report Copy to: BEECAL PATEL		TOTAL # OF CONTAINERS S-26 S-12 EPO66 EAZ00					
Requested Completion Date: 5 DAY T/A		Site ID ABERCROMBIE							
Sample Disposal: Dispose ☒ Return ☐				Preservative				LAB USE ONLY	
Sampling		Type	Matrix	CLIENT SAMPLE ID (9 CHARACTERS)		LAB QC		Custody Seals ☐ Yes ☐ No	
Date	Time							ICE ☐ Yes ☐ No	
								Comments	
								Lab ID	
24/3	am	X	SOIL	1 B H 0 1 / 0.1-0.3		1 X X X			
24/3	am	X		2 B H 0 1 / 0.8-1.0		1 X X			
24/3	am	X		3 B H 0 2 / 0.1-0.3		1 X X			
24/3	am	X		4 B H 0 2 / 0.8-1.0		1 X X			
24/3	am	X		5 B H 0 3 / 0.2-0.4		1 X X			
24/3	am	X		6 B H 0 3 / 0.6-0.8		1 X X			
24/3	am	X		7 B H 0 4 / 0.1-0.3		1 X X			
24/3	am	X		8 B H 0 4 / 0.6-1.0		1 X X			
24/3	am	X		9 B H 0 5 / 0.3-0.4		1 X X			
24/3	am	X		10 B H 0 5 / 0.5-0.7		1 X X			
24/3	am	X		11 M W 0 1 / 0.1-0.3		1 X X			
24/3	am	X		12 M W 0 1 / 0.4-0.5		1 X X			
Sampled By and Title Deval Pate				Date/Time 24/3/11		Relinquished By EMMA WATSON			
Received by Stephano				Date/Time 24/3/11		Relinquished By Stephano			
Received by Stephano				Date/Time 24/3/11		Shipped Via			
						Shipping #			
Special Instructions:									

Environmental Division
Sydney
Work Order

ES1106283



Telephone : +61-2-8784 8555

CH2MHILL ACN 050 070 892
CHAIN OF CUSTODY RECORD

Level 7, 9 Help Street, Chatswood, NSW 2067 Australia Tel (61 2) 9950 0200 Fax (61 2) 9950 0600

COC # **2032**

Project # 4200a4.01.01		Purchase Order # 54/570/10		TOTAL # OF CONTAINERS	Requested Analytical Method #								QA REQUIREMENTS										
Project Name University of Sydney					S-26 S-12 EP066 EA200									Matrix Spike	☒ Yes ☐ No								
Company Name CH2M HILL														Matrix Duplicate	☒ Yes ☐ No								
Project Manager or Contact & Phone # 0950 0710 EMMA WASH		Report Copy to: BEEJAL PATEL												Laboratory Duplicate	☒ Yes ☐ No								
Requested Completion Date: 5 DAY TA		Site ID ABERCROMBIE												Lab Blank	☒ Yes ☐ No								
														Surrogate Spike	☒ Yes ☐ No								
														RPDs	☒ Yes ☐ No								
														Spike Recovery Data	☒ Yes ☐ No								
														Preservative								LAB USE ONLY	
																						Custody Seals	☐ Yes ☐ No
				ICE	☐ Yes ☐ No																		
				Comments		Lab ID																	
				PA ~ 04 4																			

Sampling		Type	Matrix	CLIENT SAMPLE ID (9 CHARACTERS)	LAB QC
Date	Time				
24/3	pm	X	3	BH06/0.1-0.3	
24/3	pm	X	14	BH06/0.5-0.7	
24/3	pm	X	15	BH07/0.2-0.4	
24/3	pm	X	16	BH07/0.6-0.7	
24/3	pm	X	17	BH09/0.1-0.2	
24/3	pm	X	18	BH09/0.4-0.5	
24/3	pm	X	19	BH08/0.1-0.2	
24/3	pm	X	20	BH08/1.0-1.2	
23/3	am	X	21	BH10/0.3-0.5	
23/3	am	X	22	BH10/0.5-0.6	
23/3	am	X	23	MW03/0.1-0.2	
23/3	am	X	24	MW03/0.4-0.6	

Sampled By and Title Beejal Patel		(Please sign and print name)		Date/Time 22/03/11	Relinquished By EMMA WASH	(Please sign and print name)		Date/Time 24/3/11
Received by Scot Stehle		(Please sign and print name)		Date/Time 1530 24/3/11	Relinquished By	(Please sign and print name)		Date/Time
Received by		(Please sign and print name)		Date/Time	Shipped Via		Shipping #	

Special Instructions:

CH2MHILL ACN 060 070 892
CHAIN OF CUSTODY RECORD

Level 7, 9 Help Street, Chatswood, NSW 2067 Australia Tel (61 2) 9950 0200 Fax (61 2) 9950 0600

COC # **2033**

Project # 420094.01.01		Purchase Order # 54/570/10		TOTAL # OF CONTAINERS	Requested Analytical Method #								QA REQUIREMENTS										
Project Name University of Sydney					S-26 S-12 EP066 EP080 EP080									Matrix Spike	☒ Yes ☐ No								
Company Name CH2MHILL														Matrix Duplicate	☒ Yes ☐ No								
Project Manager or Contact & Phone # 0450 0210 Emma Walsh														Report Copy to: BEGAL PATEL	Laboratory Duplicate	☒ Yes ☐ No							
Requested Completion Date: 5 DAY TIA		Site ID ABERCROMBIE												Sample Disposal: Dispose ☒ Return ☐		Lab Blank	☒ Yes ☐ No						
																Surrogate Spike	☒ Yes ☐ No						
																RPDs	☒ Yes ☐ No						
																Spike Recovery Data	☒ Yes ☐ No						
														Preservative								LAB USE ONLY	
																						Custody Seals	☐ Yes ☐ No
												ICE	☐ Yes ☐ No										
Sampling		Type	Matrix	CLIENT SAMPLE ID (9 CHARACTERS)		LAB QC									Comments	Lab ID							
Date	Time																						
23/3	am		X 25	BH11/0.2-0.3			X								PA 3 OF 4								
23/3	am		X 26	BH11/0.5-0.6			X																
23/3	am		X 27	BH12/0.2-0.3			X																
23/3	am		X 28	BH12/0.4-0.5			X																
23/3	pm		X 29	BH13/0.3-0.4			X																
23/3	pm		X 30	BH13/0.4-0.6			X																
23/3	pm		X 31	MW02/0.1-0.2			X																
23/3	pm		X 32	MW02/0.4-0.5			X																
22/3	am		X 33	DUP01			X X X																
23/3	am		X 34	DUP02			X																
18/3			X 35	TRIP BLANK1			X																
18/3			X 36	TRIP SPIKE1			X																
Sampled By and Title Begal Patel		Date/Time 22/03/11		Relinquished By Emma Walsh		Date/Time 24/3/11																	
Received By Soukib/No		Date/Time 29/3/11		Relinquished By		Date/Time																	
Received By		Date/Time		Shipped Via		Shipping #																	
Special Instructions: 37-TSC																							

Level 7, 9 Help Street, Chatswood, NSW 2067 Australia Tel (61 2) 9950 0200 Fax (61 2) 9950 0600

COC #

DISTRIBUTION: Original - LAB, Yellow - LAB, Pink - CH2MHILL



Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: ES1106283	Page	: 1 of 22
Client	: CH2M HILL PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: EMMA WALSH	Contact	: Barbara Hanna
Address	:	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: emma.walsh@ch2m.com.au	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61 2 8784 8555
Project	: ----	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: SY/570/10	Date Samples Received	: 24-MAR-2011
C-O-C number	: 2031-2034	Issue Date	: 31-MAR-2011
Sampler	: ----		
Site	: ----		
Quote number	: ----	No. of samples received	: 40
		No. of samples analysed	: 40

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

This Certificate of Analysis contains the following information:

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



NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Spectroscopist	Sydney Inorganics
Hoa Nguyen	Inorganic Chemist	Sydney Inorganics
KEN HALL	Analyst	Newcastle
Phalak Inthaksone	Organics Co-ordinator	Sydney Organics



General Comments

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

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

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

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

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

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

LOR = Limit of reporting

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

- 'Am' Amosite (brown asbestos)
- 'Ch' Chrysotile (white asbestos)
- 'Cr' Crocidolite (blue asbestos)
- Legend for Asbestos Type:
- 't' Trace levels
- 'UMF' Unknown mineral fibres
- Asbestos Identification: Samples were analysed by Polarised Light Microscopy including dispersion staining.
- Confirmation by alternative techniques is recommended for samples where unknown mineral fibres are detected. Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- EG005T: LCS recovery for some analytes fall outside ALS dynamic control limits. However, they are within the acceptance criteria based on ALS DQO. No further action is required.
- EG005T: Poor precision was obtained for some elements on ES1106283 #1, due to sample heterogeneity. Results have been confirmed by re-extraction and reanalysis.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEX only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BH01/0.1-0.3	BH01/0.8-1.0	BH02/0.1-0.3	BH02/0.8-1.0	BH03/0.2-0.4
				22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00
				ES1106283-001	ES1106283-002	ES1106283-003	ES1106283-004	ES1106283-005
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1.0	%	29.2	28.5	15.5	25.1	20.9
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	No	----	No
Asbestos Type	132207-33-1	0.1	--	----	----	-	----	-
Sample weight (dry)	----	0.01	g	----	----	54.2	----	61.6
APPROVED IDENTIFIER:	----	-	--	----	----	K.HALL	----	K.HALL
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	12	<5	10	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	13	23	29	29	18
Copper	7440-50-8	5	mg/kg	103	<5	14	21	21
Lead	7439-92-1	5	mg/kg	701	33	42	396	303
Nickel	7440-02-0	2	mg/kg	6	<2	27	13	4
Zinc	7440-66-6	5	mg/kg	220	<5	38	124	177
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.2	0.1	<0.1	<0.1	0.2
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.10	mg/kg	<0.10	<0.10	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	----
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	----	----	----



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BH01/0.1-0.3	BH01/0.8-1.0	BH02/0.1-0.3	BH02/0.8-1.0	BH03/0.2-0.4
				22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00
				ES1106283-001	ES1106283-002	ES1106283-003	ES1106283-004	ES1106283-005
EP068A: Organochlorine Pesticides (OC) - Continued								
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg	<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg	<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg	<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg	<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg	<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg	<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	----	----	----	----
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	1.1
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	0.7
Phenanthrene	85-01-8	0.5	mg/kg	1.7	<0.5	<0.5	1.1	7.1
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	1.7
Fluoranthene	206-44-0	0.5	mg/kg	2.7	<0.5	<0.5	2.2	11.4
Pyrene	129-00-0	0.5	mg/kg	2.6	<0.5	<0.5	2.3	10.3
Benz(a)anthracene	56-55-3	0.5	mg/kg	1.2	<0.5	<0.5	1.1	5.0
Chrysene	218-01-9	0.5	mg/kg	1.2	<0.5	<0.5	1.0	3.8
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	1.6	<0.5	<0.5	1.3	4.9
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	1.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	1.2	<0.5	<0.5	1.0	4.0
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	0.5	<0.5	<0.5	0.6	1.3



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BH01/0.1-0.3	BH01/0.8-1.0	BH02/0.1-0.3	BH02/0.8-1.0	BH03/0.2-0.4
				22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00
				ES1106283-001	ES1106283-002	ES1106283-003	ES1106283-004	ES1106283-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	0.6	<0.5	<0.5	0.6	1.3
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	420	<100	<100	<100	180
C29 - C36 Fraction	----	100	mg/kg	250	<100	<100	<100	120
^ C10 - C36 Fraction (sum)	----	50	mg/kg	670	<50	<50	<50	300
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
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	126	124	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	138	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	94.0	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	104	99.8	95.6	98.2	102
2-Chlorophenol-D4	93951-73-6	0.1	%	105	98.6	91.6	98.0	100
2,4,6-Tribromophenol	118-79-6	0.1	%	120	100	76.0	79.8	96.3
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	110	105	103	103	102
Anthracene-d10	1719-06-8	0.1	%	110	104	102	103	103
4-Terphenyl-d14	1718-51-0	0.1	%	119	119	115	113	112
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	100	92.5	97.8	102	90.4
Toluene-D8	2037-26-5	0.1	%	82.0	94.7	99.1	98.8	89.2
4-Bromofluorobenzene	460-00-4	0.1	%	85.9	99.5	102	102	96.6



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

Sub-Matrix: SOIL				Client sample ID	BH03/0.6-0.8	BH04/0.1-0.3	BH04/0.6-1.0	BH05/0.3-0.4	BH05/0.5-0.7
				Client sampling date / time	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00
Compound	CAS Number	LOR	Unit	ES1106283-006	ES1106283-007	ES1106283-008	ES1106283-009	ES1106283-010	
EA055: Moisture Content									
^ Moisture Content (dried @ 103°C)	----	1.0	%	25.9	23.1	23.7	37.3	20.0	
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	<5	<5	7	24	11	
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	4	<1	
Chromium	7440-47-3	2	mg/kg	23	21	31	31	29	
Copper	7440-50-8	5	mg/kg	8	14	5	123	5	
Lead	7439-92-1	5	mg/kg	79	83	40	948	35	
Nickel	7440-02-0	2	mg/kg	3	4	<2	24	<2	
Zinc	7440-66-6	5	mg/kg	14	692	428	3560	93	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	0.1	<0.1	<0.1	0.4	<0.1	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	0.7	<0.5	
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	1.8	<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	11.3	<0.5	
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	2.2	<0.5	
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	26.9	<0.5	
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	28.9	<0.5	
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	14.8	<0.5	
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	14.6	<0.5	
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	19.3	<0.5	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	5.8	<0.5	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	15.8	<0.5	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	6.8	<0.5	
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	1.6	<0.5	
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	6.9	<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	1060	<100	
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	820	<100	
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	1880	<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	



Analytical Results

Sub-Matrix: **SOIL**

Client sample ID

Client sampling date / time

				BH03/0.6-0.8	BH04/0.1-0.3	BH04/0.6-1.0	BH05/0.3-0.4	BH05/0.5-0.7
				22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00
Compound	CAS Number	LOR	Unit	ES1106283-006	ES1106283-007	ES1106283-008	ES1106283-009	ES1106283-010
EP080: BTEX - Continued								
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
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	102	92.9	100	94.6	97.2
2-Chlorophenol-D4	93951-73-6	0.1	%	104	97.5	98.7	94.3	100
2,4,6-Tribromophenol	118-79-6	0.1	%	94.5	87.8	83.0	94.9	91.5
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	105	99.4	104	101	99.1
Anthracene-d10	1719-06-8	0.1	%	104	96.9	102	97.9	98.5
4-Terphenyl-d14	1718-51-0	0.1	%	116	108	117	108	112
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	110	86.9	92.5	94.0	91.0
Toluene-D8	2037-26-5	0.1	%	92.4	91.4	109	93.6	97.9
4-Bromofluorobenzene	460-00-4	0.1	%	82.2	96.5	85.2	94.6	78.4



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

Sub-Matrix: SOIL				Client sample ID	MW01/0.1-0.3	MW01/0.4-0.5	BH06/0.1-0.3	BH06/0.5-0.7	BH0.7/0.2-0.4
				Client sampling date / time	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00
Compound	CAS Number	LOR	Unit	ES1106283-011	ES1106283-012	ES1106283-013	ES1106283-014	ES1106283-015	
EA055: Moisture Content									
^ Moisture Content (dried @ 103°C)	----	1.0	%	22.6	24.0	13.3	20.0	1.4	
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples									
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	No	----	----	
Asbestos Type	132207-33-1	0.1	--	----	----	-	----	----	
Sample weight (dry)	----	0.01	g	----	----	75.8	----	----	
APPROVED IDENTIFIER:	----	-	--	----	----	K.HALL	----	----	
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	<5	5	<5	6	<5	
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1	
Chromium	7440-47-3	2	mg/kg	24	34	29	33	14	
Copper	7440-50-8	5	mg/kg	10	8	20	<5	10	
Lead	7439-92-1	5	mg/kg	63	30	376	33	46	
Nickel	7440-02-0	2	mg/kg	5	3	16	2	6	
Zinc	7440-66-6	5	mg/kg	25	12	303	7	66	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.1	<0.1	0.5	
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	
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	



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	MW01/0.1-0.3	MW01/0.4-0.5	BH06/0.1-0.3	BH06/0.5-0.7	BH0.7/0.2-0.4
				22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00
				ES1106283-011	ES1106283-012	ES1106283-013	ES1106283-014	ES1106283-015
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	29.6	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	27.6	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	10.8	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	51.0	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	0.8	<0.5	329	<0.5	1.9
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	47.1	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	1.4	<0.5	247	<0.5	3.2
Pyrene	129-00-0	0.5	mg/kg	1.3	<0.5	204	<0.5	3.0
Benz(a)anthracene	56-55-3	0.5	mg/kg	0.6	<0.5	58.6	<0.5	1.7
Chrysene	218-01-9	0.5	mg/kg	0.6	<0.5	46.2	<0.5	1.3
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	0.7	<0.5	55.9	<0.5	1.7
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	15.0	<0.5	0.6
Benzo(a)pyrene	50-32-8	0.5	mg/kg	0.6	<0.5	42.5	<0.5	1.4
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	13.8	<0.5	0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	4.0	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	11.6	<0.5	0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

Sub-Matrix: SOIL				Client sample ID	MW01/0.1-0.3	MW01/0.4-0.5	BH06/0.1-0.3	BH06/0.5-0.7	BH0.7/0.2-0.4
				Client sampling date / time	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00
Compound	CAS Number	LOR	Unit	ES1106283-011	ES1106283-012	ES1106283-013	ES1106283-014	ES1106283-015	
EP080/071: Total Petroleum Hydrocarbons - Continued									
C10 - C14 Fraction	----	50	mg/kg	<50	<50	430	<50	<50	
C15 - C28 Fraction	----	100	mg/kg	<100	<100	3440	<100	<100	
C29 - C36 Fraction	----	100	mg/kg	<100	<100	900	<100	<100	
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	4770	<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	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.1	%	----	----	145	143	122	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.1	%	----	----	73.4	85.2	85.0	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%	95.6	97.5	96.3	101	92.6	
2-Chlorophenol-D4	93951-73-6	0.1	%	96.2	96.3	100	101	91.9	
2,4,6-Tribromophenol	118-79-6	0.1	%	96.4	84.1	88.7	89.7	81.3	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%	98.3	97.8	97.6	102	95.0	
Anthracene-d10	1719-06-8	0.1	%	98.6	95.2	98.0	100	93.5	
4-Terphenyl-d14	1718-51-0	0.1	%	107	107	110	113	102	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.1	%	116	103	105	96.4	100	
Toluene-D8	2037-26-5	0.1	%	86.9	94.7	104	93.0	101	
4-Bromofluorobenzene	460-00-4	0.1	%	90.9	89.7	100	94.5	104	



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

Sub-Matrix: SOIL				Client sample ID	BH0.7/0.6-0.7	BH09/0.1-0.2	BH09/0.4-0.5	BH08/0.1-0.2	BH08/1.0-1.2
				Client sampling date / time	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00
Compound	CAS Number	LOR	Unit	ES1106283-016	ES1106283-017	ES1106283-018	ES1106283-019	ES1106283-020	
EA055: Moisture Content									
^ Moisture Content (dried @ 103°C)	----	1.0	%	30.4	42.2	22.9	25.1	18.5	
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples									
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	No	----	
Asbestos Type	132207-33-1	0.1	--	----	----	----	-	----	
Sample weight (dry)	----	0.01	g	----	----	----	45.0	----	
APPROVED IDENTIFIER:	----	-	--	----	----	----	K.HALL	----	
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	<5	<5	8	8	<5	
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1	
Chromium	7440-47-3	2	mg/kg	18	78	16	17	18	
Copper	7440-50-8	5	mg/kg	191	198	16	32	34	
Lead	7439-92-1	5	mg/kg	346	358	43	76	195	
Nickel	7440-02-0	2	mg/kg	4	9	<2	7	5	
Zinc	7440-66-6	5	mg/kg	95	734	33	215	190	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	0.2	0.4	0.2	<0.1	0.2	
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	----	----	----	
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	----	----	----	
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	----	----	----	
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	----	----	----	
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	----	----	----	
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	----	----	----	
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	----	----	----	
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	----	----	----	
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	----	----	----	
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	----	----	----	
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	----	----	----	
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	----	----	----	
4,4' -DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	----	----	----	
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	----	----	----	
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	----	----	----	
4,4' -DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	----	----	----	
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	----	----	----	
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	----	----	----	
4,4' -DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	----	----	----	
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	----	----	----	
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	----	----	----	



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BH0.7/0.6-0.7	BH09/0.1-0.2	BH09/0.4-0.5	BH08/0.1-0.2	BH08/1.0-1.2
				22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00
				ES1106283-016	ES1106283-017	ES1106283-018	ES1106283-019	ES1106283-020
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	----	----	----
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	----	----	----
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	----	----	----
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	----	----	----
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	----	----	----
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	----	----	----
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	----	----	----
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	1.0	<0.5	<0.5	1.2
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	1.9	<0.5	0.8	3.6
Pyrene	129-00-0	0.5	mg/kg	<0.5	1.8	<0.5	0.9	3.6
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	0.9	<0.5	0.6	2.4
Chrysene	218-01-9	0.5	mg/kg	<0.5	0.9	<0.5	<0.5	1.8
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	1.2	<0.5	0.7	2.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	0.9
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	1.0	<0.5	0.7	2.3
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	0.9
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	0.9
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				BH0.7/0.6-0.7	BH09/0.1-0.2	BH09/0.4-0.5	BH08/0.1-0.2	BH08/1.0-1.2
				22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00
Compound	CAS Number	LOR	Unit	ES1106283-016	ES1106283-017	ES1106283-018	ES1106283-019	ES1106283-020
EP080/071: Total Petroleum Hydrocarbons - Continued								
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	130	<100	<100	150
C29 - C36 Fraction	----	100	mg/kg	<100	110	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	240	<50	<50	150
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
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	162	113	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	98.1	90.9	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	91.2	97.5	96.8	92.8	92.3
2-Chlorophenol-D4	93951-73-6	0.1	%	95.0	95.2	100	96.8	95.0
2,4,6-Tribromophenol	118-79-6	0.1	%	78.6	98.6	86.0	78.2	82.3
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	98.2	101	102	98.0	96.0
Anthracene-d10	1719-06-8	0.1	%	95.2	98.6	100	97.0	95.7
4-Terphenyl-d14	1718-51-0	0.1	%	107	109	112	109	107
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	85.9	85.9	109	101	107
Toluene-D8	2037-26-5	0.1	%	84.7	78.8	114	101	102
4-Bromofluorobenzene	460-00-4	0.1	%	86.8	84.3	118	102	107



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

Sub-Matrix: SOIL				Client sample ID	BH10/0.3-0.5	BH10/0.5-0.6	MW03/0.1-0.2	MW03/0.4-0.6	BH11/0.2-0.3
				Client sampling date / time	23-MAR-2011 15:00	23-MAR-2011 15:00	23-MAR-2011 15:00	23-MAR-2011 15:00	23-MAR-2011 15:00
Compound	CAS Number	LOR	Unit	ES1106283-021	ES1106283-022	ES1106283-023	ES1106283-024	ES1106283-025	
EA055: Moisture Content									
^ Moisture Content (dried @ 103°C)	----	1.0	%	5.0	2.9	3.5	15.7	13.2	
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples									
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----	
Asbestos Type	132207-33-1	0.1	--	-	----	----	----	----	
Sample weight (dry)	----	0.01	g	61.8	----	----	----	----	
APPROVED IDENTIFIER:	----	-	--	K.HALL	----	----	----	----	
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	5	7	
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1	
Chromium	7440-47-3	2	mg/kg	14	8	9	18	19	
Copper	7440-50-8	5	mg/kg	20	12	32	32	77	
Lead	7439-92-1	5	mg/kg	32	15	343	148	140	
Nickel	7440-02-0	2	mg/kg	10	3	5	6	8	
Zinc	7440-66-6	5	mg/kg	26	10	267	95	395	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.2	0.4	0.4	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	2.9	<0.5	<0.5	
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	8.5	1.0	<0.5	
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	2.0	<0.5	<0.5	
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	5.5	<0.5	<0.5	
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	104	5.8	<0.5	
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	36.4	1.9	<0.5	
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	175	11.4	1.2	
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	185	11.4	1.3	
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	80.1	6.1	0.7	
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	72.2	4.8	0.7	
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	88.8	6.2	1.0	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	18.5	2.0	<0.5	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	73.8	5.3	0.8	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	34.4	2.4	<0.5	
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	10.8	0.6	<0.5	
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	40.5	2.8	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	3260	160	<100	



Analytical Results

Sub-Matrix: **SOIL**

Client sample ID

Client sampling date / time

				BH10/0.3-0.5	BH10/0.5-0.6	MW03/0.1-0.2	MW03/0.4-0.6	BH11/0.2-0.3
				23-MAR-2011 15:00	23-MAR-2011 15:00	23-MAR-2011 15:00	23-MAR-2011 15:00	23-MAR-2011 15:00
Compound	CAS Number	LOR	Unit	ES1106283-021	ES1106283-022	ES1106283-023	ES1106283-024	ES1106283-025
EP080/071: Total Petroleum Hydrocarbons - Continued								
C29 - C36 Fraction	----	100	mg/kg	<100	<100	1970	110	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	5230	270	<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
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	105	107	103	103	102
2-Chlorophenol-D4	93951-73-6	0.1	%	104	102	102	101	97.8
2,4,6-Tribromophenol	118-79-6	0.1	%	87.1	94.9	97.8	89.3	83.2
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	106	107	107	104	103
Anthracene-d10	1719-06-8	0.1	%	103	108	97.6	98.9	100
4-Terphenyl-d14	1718-51-0	0.1	%	108	114	108	107	106
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	96.9	112	98.3	95.8	101
Toluene-D8	2037-26-5	0.1	%	109	104	103	99.2	114
4-Bromofluorobenzene	460-00-4	0.1	%	107	107	101	103	112



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

Sub-Matrix: SOIL				Client sample ID	BH11/0.5-0.6	BH12/0.2-0.3	BH12/0.4-0.5	BH13/0.3-0.4	BH13/0.4-0.6
				Client sampling date / time	23-MAR-2011 15:00	23-MAR-2011 15:00	23-MAR-2011 15:00	23-MAR-2011 15:00	23-MAR-2011 15:00
Compound	CAS Number	LOR	Unit	ES1106283-026	ES1106283-027	ES1106283-028	ES1106283-029	ES1106283-030	
EA055: Moisture Content									
^ Moisture Content (dried @ 103°C)	----	1.0	%	18.8	13.4	16.2	17.0	23.5	
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples									
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	No	----	
Asbestos Type	132207-33-1	0.1	--	----	----	----	-	----	
Sample weight (dry)	----	0.01	g	----	----	----	43.8	----	
APPROVED IDENTIFIER:	----	-	--	----	----	----	K.HALL	----	
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	8	10	10	6	7	
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1	
Chromium	7440-47-3	2	mg/kg	22	16	18	36	36	
Copper	7440-50-8	5	mg/kg	52	55	49	<5	<5	
Lead	7439-92-1	5	mg/kg	179	122	107	22	22	
Nickel	7440-02-0	2	mg/kg	9	6	6	3	4	
Zinc	7440-66-6	5	mg/kg	448	339	322	<5	6	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	0.3	0.3	<0.1	<0.1	<0.1	
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	0.9	<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	0.7	7.8	0.8	<0.5	0.7	
Anthracene	120-12-7	0.5	mg/kg	<0.5	2.2	<0.5	<0.5	<0.5	
Fluoranthene	206-44-0	0.5	mg/kg	1.6	11.2	2.0	1.0	1.5	
Pyrene	129-00-0	0.5	mg/kg	1.7	11.5	2.0	1.1	1.7	
Benz(a)anthracene	56-55-3	0.5	mg/kg	0.9	5.4	1.0	0.6	1.0	
Chrysene	218-01-9	0.5	mg/kg	0.9	4.5	1.0	0.5	0.8	
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	1.2	5.4	1.4	0.7	1.1	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	1.3	<0.5	<0.5	0.5	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	1.0	4.5	1.1	0.6	1.0	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	1.9	0.6	<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	0.6	2.3	0.7	<0.5	0.5	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10	
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50	
C15 - C28 Fraction	----	100	mg/kg	<100	110	<100	<100	<100	



Analytical Results

Sub-Matrix: **SOIL**

Client sample ID

Client sampling date / time

				BH11/0.5-0.6	BH12/0.2-0.3	BH12/0.4-0.5	BH13/0.3-0.4	BH13/0.4-0.6
				23-MAR-2011 15:00	23-MAR-2011 15:00	23-MAR-2011 15:00	23-MAR-2011 15:00	23-MAR-2011 15:00
Compound	CAS Number	LOR	Unit	ES1106283-026	ES1106283-027	ES1106283-028	ES1106283-029	ES1106283-030
EP080/071: Total Petroleum Hydrocarbons - Continued								
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	110	<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
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	97.6	104	96.2	97.7	100
2-Chlorophenol-D4	93951-73-6	0.1	%	95.7	102	95.3	95.7	99.4
2,4,6-Tribromophenol	118-79-6	0.1	%	84.6	86.2	83.8	84.9	86.1
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	98.5	104	101	99.7	103
Anthracene-d10	1719-06-8	0.1	%	95.9	98.9	97.6	96.1	99.7
4-Terphenyl-d14	1718-51-0	0.1	%	107	109	104	106	110
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	108	114	95.9	92.0
Toluene-D8	2037-26-5	0.1	%	116	119	99.2	97.8	103
4-Bromofluorobenzene	460-00-4	0.1	%	111	110	105	99.9	99.5



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				MW02/0.1-0.2	MW02/0.4-0.5	DUP01	DUP02	TRIP BLANK 6
				23-MAR-2011 15:00	23-MAR-2011 15:00	23-MAR-2011 15:00	23-MAR-2011 15:00	18-MAR-2011 15:00
Compound	CAS Number	LOR	Unit	ES1106283-031	ES1106283-032	ES1106283-033	ES1106283-034	ES1106283-035
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1.0	%	5.8	12.5	36.8	5.3	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	8	5	<5	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	6	17	12	9	----
Copper	7440-50-8	5	mg/kg	23	38	1360	16	----
Lead	7439-92-1	5	mg/kg	22	142	431	21	----
Nickel	7440-02-0	2	mg/kg	5	6	9	7	----
Zinc	7440-66-6	5	mg/kg	10	146	196	16	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.1	0.2	0.3	<0.1	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.10	mg/kg	----	----	<0.10	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	----	<0.05	----	----
gamma-BHC	58-89-9	0.05	mg/kg	----	----	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	----	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg	----	----	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg	----	----	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg	----	----	<0.05	----	----
4,4'-DDE	72-55-9	0.05	mg/kg	----	----	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg	----	----	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	<0.05	----	----
4,4'-DDD	72-54-8	0.05	mg/kg	----	----	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	----	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	----	<0.05	----	----
4,4'-DDT	50-29-3	0.2	mg/kg	----	----	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	----	----	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg	----	----	<0.2	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	----	----	<0.05	----	----



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

Sub-Matrix: SOIL				Client sample ID	MW02/0.1-0.2	MW02/0.4-0.5	DUP01	DUP02	TRIP BLANK 6
				Client sampling date / time	23-MAR-2011 15:00	23-MAR-2011 15:00	23-MAR-2011 15:00	23-MAR-2011 15:00	18-MAR-2011 15:00
Compound	CAS Number	LOR	Unit	ES1106283-031	ES1106283-032	ES1106283-033	ES1106283-034	ES1106283-035	
EP068B: Organophosphorus Pesticides (OP) - Continued									
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	----	<0.05	----	----	
Monocrotophos	6923-22-4	0.2	mg/kg	----	----	<0.2	----	----	
Dimethoate	60-51-5	0.05	mg/kg	----	----	<0.05	----	----	
Diazinon	333-41-5	0.05	mg/kg	----	----	<0.05	----	----	
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	----	<0.05	----	----	
Parathion-methyl	298-00-0	0.2	mg/kg	----	----	<0.2	----	----	
Malathion	121-75-5	0.05	mg/kg	----	----	<0.05	----	----	
Fenthion	55-38-9	0.05	mg/kg	----	----	<0.05	----	----	
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	----	<0.05	----	----	
Parathion	56-38-2	0.2	mg/kg	----	----	<0.2	----	----	
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	----	<0.05	----	----	
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	----	<0.05	----	----	
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	----	<0.05	----	----	
Fenamiphos	22224-92-6	0.05	mg/kg	----	----	<0.05	----	----	
Prothiofos	34643-46-4	0.05	mg/kg	----	----	<0.05	----	----	
Ethion	563-12-2	0.05	mg/kg	----	----	<0.05	----	----	
Carbophenothion	786-19-6	0.05	mg/kg	----	----	<0.05	----	----	
Azinphos Methyl	86-50-0	0.05	mg/kg	----	----	<0.05	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg	0.5	6.8	<0.5	<0.5	----	
Acenaphthylene	208-96-8	0.5	mg/kg	0.8	4.7	<0.5	<0.5	----	
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	1.6	<0.5	<0.5	----	
Fluorene	86-73-7	0.5	mg/kg	<0.5	3.6	<0.5	<0.5	----	
Phenanthrene	85-01-8	0.5	mg/kg	4.6	23.9	2.1	<0.5	----	
Anthracene	120-12-7	0.5	mg/kg	1.5	7.2	0.6	<0.5	----	
Fluoranthene	206-44-0	0.5	mg/kg	8.2	27.7	3.0	<0.5	----	
Pyrene	129-00-0	0.5	mg/kg	8.5	27.3	3.0	<0.5	----	
Benz(a)anthracene	56-55-3	0.5	mg/kg	4.2	15.6	1.5	<0.5	----	
Chrysene	218-01-9	0.5	mg/kg	4.0	14.2	1.4	<0.5	----	
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	4.1	19.6	2.0	<0.5	----	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	1.2	6.1	0.5	<0.5	----	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	3.7	15.9	1.5	<0.5	----	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	1.8	8.4	0.8	<0.5	----	
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	1.9	<0.5	<0.5	----	
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	2.2	10.2	1.0	<0.5	----	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	----	
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	----	



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				MW02/0.1-0.2	MW02/0.4-0.5	DUP01	DUP02	TRIP BLANK 6
				23-MAR-2011 15:00	23-MAR-2011 15:00	23-MAR-2011 15:00	23-MAR-2011 15:00	18-MAR-2011 15:00
Compound	CAS Number	LOR	Unit	ES1106283-031	ES1106283-032	ES1106283-033	ES1106283-034	ES1106283-035
EP080/071: Total Petroleum Hydrocarbons - Continued								
C15 - C28 Fraction	----	100	mg/kg	120	150	140	<100	----
C29 - C36 Fraction	----	100	mg/kg	100	150	160	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	220	300	300	<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
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	124	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	----	----	140	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	----	----	84.7	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	102	99.3	85.7	98.5	----
2-Chlorophenol-D4	93951-73-6	0.1	%	101	99.6	84.4	97.2	----
2,4,6-Tribromophenol	118-79-6	0.1	%	88.4	91.6	74.4	80.8	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	104	103	83.8	98.0	----
Anthracene-d10	1719-06-8	0.1	%	101	99.2	79.8	97.1	----
4-Terphenyl-d14	1718-51-0	0.1	%	108	107	83.5	105	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	116	97.4	88.7	102	92.3
Toluene-D8	2037-26-5	0.1	%	115	117	97.0	108	106
4-Bromofluorobenzene	460-00-4	0.1	%	118	110	93.6	110	96.0



Analytical Results

Sub-Matrix: **SOIL**

Client sample ID

Client sampling date / time

				TRIP SPIKE 6	TSC6	TRIP SPIKE 7	TRIP BLANK 7	TSC7
				18-MAR-2011 15:00	18-MAR-2011 15:00	18-MAR-2011 15:00	18-MAR-2011 15:00	18-MAR-2011 15:00
Compound	CAS Number	LOR	Unit	ES1106283-036	ES1106283-037	ES1106283-038	ES1106283-039	ES1106283-040
EP080: BTEX								
Benzene	71-43-2	0.2	mg/kg	0.4	0.5	0.3	<0.2	0.3
Toluene	108-88-3	0.5	mg/kg	7.4	9.3	9.6	<0.5	9.6
Ethylbenzene	100-41-4	0.5	mg/kg	1.1	1.4	1.3	<0.5	1.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	5.9	7.1	7.7	<0.5	7.5
ortho-Xylene	95-47-6	0.5	mg/kg	2.3	2.7	2.9	<0.5	3.0
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	80.2	87.8	100	99.7	89.3
Toluene-D8	2037-26-5	0.1	%	92.5	98.8	120	119	111
4-Bromofluorobenzene	460-00-4	0.1	%	86.2	96.6	103	103	85.2

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples		
EA200: Description	BH02/0.1-0.3 - 22-MAR-2011 15:00	A mixture of shale and yellow and grey sandstone rocks. Some of the grey sandstone has a texture resembling coke and there are traces of yellow fine grain clay in the yellow sandstone grains.
EA200: Description	BH03/0.2-0.4 - 22-MAR-2011 15:00	A mid greyish-brown coarse grain sandy clay soil with plenty of grey shale and quartz rock and some iron ore rocks. Some white fine grain clay coal and coke and charcoal and sidered coal and rust also present. Trace of vegetation.
EA200: Description	BH06/0.1-0.3 - 22-MAR-2011 15:00	A mid grey coarse grain sandy clay soil with a large amount of mid brown and white sandstone rocks and some iron ore rocks. Some coal and black slag grains present and some rust grains.
EA200: Description	BH08/0.1-0.2 - 22-MAR-2011 15:00	A light brown clay soil with plenty of reddish-brown streak and plenty of woody vegetation debris. Some coal and charcoal grains present and some minor iron ore rocks and some slag grains also present.
EA200: Description	BH10/0.3-0.5 - 23-MAR-2011 15:00	A very coarse grain friable white sandy clay soil with plenty of white sandstone rocks and some minor shale rock.
EA200: Description	BH13/0.3-0.4 - 23-MAR-2011 15:00	A dark brown fine grain clay soil with some iron ore rocks and charcoal.



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	30.8	155.7
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	19.5	167.0
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	22.7	163.5
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	56.3	133.3
2-Chlorophenol-D4	93951-73-6	53.8	133.8
2,4,6-Tribromophenol	118-79-6	23.1	134.9
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	58.9	132.7
Anthracene-d10	1719-06-8	55.0	137.6
4-Terphenyl-d14	1718-51-0	54.0	147.8
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

CH2MHILL ACN 090 070 892
CHAIN OF CUSTODY RECORD

Level 7, 9 Help Street, Chatswood, NSW 2067 Australia Tel (61 2) 9950 0200 Fax (61 2) 9950 0600

8/4/11

COC # **2000**

Project # 420094.01.01		Purchase Order # 541570110		TOTAL # OF CONTAINERS	Requested Analytical Method #										QA REQUIREMENTS								
Project Name University of Sydney					TUP Prep 8 metals in TUP PAH in TUP											Matrix Spike	☒ Yes ☐ No						
Company Name CH2MHILL																Matrix Duplicate	☒ Yes ☐ No						
Project Manager or Contact & Phone # 9950 0220 EMMA WALSH																Report Copy to: BEGON PATEL	Laboratory Duplicate	☒ Yes ☐ No					
Requested Completion Date: 5 DAY TIA																Site ID ABERCROMBIE	Sample Disposal: Dispose ☒ Return ☐	Lab Blank	☒ Yes ☐ No				
Requested Completion Date:		Site ID				Preservative										LAB USE ONLY							
Sampling		Type	Matrix	CLIENT SAMPLE ID (9 CHARACTERS)		LAB QC												Custody Seals ☐ Yes ☐ No					
Date	Time																	ICE ☐ Yes ☐ No					
22/3	am	X	X	1 B H 0 1 / 0.1-0.3		①		X	X											Comments - PG 1 OF 1 - samples submitted to ALS on 24/3/11 with ALS Workorder ES1106283			
22/3	am	X	X	2 B H 0 5 / 0.3-0.4		②		X	X														
22/3	pm	X	X	3 B H 0 6 / 0.1-0.3		③		X	X														
23/3	am	X	X	4 M W 0 3 / 0.1-0.2		④		X	X														
23/3	pm	X	X	5 M W 0 2 / 0.4-0.5		⑤		X	X														
Sampled By and Title Michael STRANIER		(Please sign and print name)		Date/Time		Relinquished By ALREADY WITH ALS		(Please sign and print name)		Date/Time													
Received by		(Please sign and print name)		Date/Time		Relinquished By		(Please sign and print name)		Date/Time													
Received by Taxi		(Please sign and print name)		Date/Time 11/4/11		Shipped Via				Shipping #													
Special Instructions: 11:45a																							

Environmental Division
 Sydney
 Work Order

ES1106938



Telephone : + 61-2-8784 8555



Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: ES1106938	Page	: 1 of 5
Client	: CH2M HILL PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: EMMA WALSH	Contact	: Client Services
Address	:	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: emma.walsh@ch2m.com.au	E-mail	: sydney@alsglobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 420094 01 01 UNIVERSITY OF SYDNEY REBATCH OF ES1106283	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: REBATCH OF ES1106283	Date Samples Received	: 01-APR-2011
C-O-C number	: 2000	Issue Date	: 08-APR-2011
Sampler	: MICHAEL STRANGER	No. of samples received	: 5
Site	: ABERCROMBIE	No. of samples analysed	: 5
Quote number	: ----		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Spectroscopist	Sydney Inorganics
Edwandy Fadjar	Senior Organic Chemist	Sydney Organics
Luke Witham	Senior Inorganic Chemist	Sydney Inorganics

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A Campbell Brothers Limited Company



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

Page : 3 of 5
 Work Order : ES1106938
 Client : CH2M HILL PTY LTD
 Project : 420094 01 01 UNIVERSITY OF SYDNEY REBATCH OF ES1106283



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				BH01/0.1-0.3	BH05/0.3-0.4	BH06/0.1-0.3	MW03/0.1-0.2	MW02/0.4-0.5
				22-MAR-2011 15:00	22-MAR-2011 15:00	22-MAR-2011 15:00	23-MAR-2011 15:00	23-MAR-2011 15:00
Compound	CAS Number	LOR	Unit	ES1106938-001	ES1106938-002	ES1106938-003	ES1106938-004	ES1106938-005
EN33: TCLP Leach								
Initial pH	----	0.1	pH Unit	8.8	8.8	9.1	8.8	8.2
After HCl pH	----	0.1	pH Unit	1.8	1.8	1.9	1.6	1.6
Extraction Fluid Number	----	1	-	1	1	1	1	1
Final pH	----	0.1	pH Unit	5.1	5.3	5.5	4.9	4.8



Analytical Results

Sub-Matrix: TCLP LEACHATE

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BH01/0.1-0.3	BH05/0.3-0.4	BH06/0.1-0.3	MW03/0.1-0.2	MW02/0.4-0.5
				06-APR-2011 12:00	06-APR-2011 12:00	06-APR-2011 12:00	06-APR-2011 12:00	06-APR-2011 12:00
				ES1106938-001	ES1106938-002	ES1106938-003	ES1106938-004	ES1106938-005
EG005C: Leachable Metals by ICPAES								
Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	<0.1	----	----
Cadmium	7440-43-9	0.05	mg/L	<0.05	<0.05	<0.05	----	----
Chromium	7440-47-3	0.1	mg/L	<0.1	<0.1	<0.1	----	----
Copper	7440-50-8	0.1	mg/L	0.2	<0.1	<0.1	----	----
Lead	7439-92-1	0.1	mg/L	0.3	0.2	2.2	----	----
Nickel	7440-02-0	0.1	mg/L	<0.1	<0.1	<0.1	----	----
Zinc	7440-66-6	0.1	mg/L	0.9	14.8	1.2	----	----
EG035C: Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0010	mg/L	<0.0010	<0.0010	<0.0010	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	----	----	9.4	1.3	35.2
Acenaphthylene	208-96-8	1.0	µg/L	----	----	6.9	<1.0	2.7
Acenaphthene	83-32-9	1.0	µg/L	----	----	3.9	<1.0	4.2
Fluorene	86-73-7	1.0	µg/L	----	----	13.3	<1.0	4.4
Phenanthrene	85-01-8	1.0	µg/L	----	----	15.2	2.9	8.9
Anthracene	120-12-7	1.0	µg/L	----	----	2.6	<1.0	1.6
Fluoranthene	206-44-0	1.0	µg/L	----	----	2.4	1.9	2.3
Pyrene	129-00-0	1.0	µg/L	----	----	1.6	1.6	1.9
Benz(a)anthracene	56-55-3	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	----	<0.5	<0.5	0.8
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	----	----	<1.0	<1.0	<1.0
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	----	----	29.9	33.7	39.4
2-Chlorophenol-D4	93951-73-6	0.1	%	----	----	66.9	77.8	79.0
2,4,6-Tribromophenol	118-79-6	0.1	%	----	----	68.5	79.7	78.6
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	66.7	74.9	80.7
Anthracene-d10	1719-06-8	0.1	%	----	----	61.2	77.9	71.7
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	62.6	79.1	69.3



Surrogate Control Limits

Sub-Matrix: TCLP LEACHATE		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	64.1
2-Chlorophenol-D4	93951-73-6	11.3	122.9
2.4.6-Tribromophenol	118-79-6	11.7	144.0
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	19.9	122.8
Anthracene-d10	1719-06-8	23.3	125.8
4-Terphenyl-d14	1718-51-0	20.3	134.5

Level 7, 9 Help Street, Chatswood, NSW 2067 Australia Tel (61 2) 9950 0200 Fax (61 2) 9950 0600

Project # 40094.01.01						Purchase Order # 541570110									
Project Name University of Sydney															
Company Name CUMMINS															
Project Manager or Contact & Phone # 9950 0110 EMMA WALSH						Report Copy to: BEECAL PATER									
Requested Completion Date: 5 DAY TIA				Site ID ABERCROMBIE				Sample Disposal: Dispose ☒ Return ☐							
Sampling		Type	Matrix	CLIENT SAMPLE ID (9 CHARACTERS)						LAB QC					
Date	Time														
1/4		X	MW01												
1/4		X	MW02												
1/4		X	MW03												
1/4		X	OUP01												
1/4		X	RINUSATE												
3/13			XTRIP SPIKE												
3/13			XTRIP BLANK												
TOTAL # OF CONTAINERS															
Requested Analytical Method #															
Preservative															
QA REQUIREMENTS															
Matrix Spike ☐ Yes ☐ No															
Matrix Duplicate ☐ Yes ☐ No															
Laboratory Duplicate ☐ Yes ☐ No															
Lab Blank ☐ Yes ☐ No															
Surrogate Spike ☐ Yes ☐ No															
RPDs ☐ Yes ☐ No															
Spike Recovery Data ☐ Yes ☐ No															
LAB USE ONLY															
Custody Seals ☒ Yes ☐ No															
ICE ☒ Yes ☒ No															
Comments										Lab ID					
Environmental Division Sydney Work Order ES1106923															
															
Telephone : +61-2-8784 8555															
Sampled By and Title Michael Stranger				Date/Time 1-4-11				Relinquished By Michael Stranger				Date/Time 1-4-11			
Received by				Date/Time				Relinquished By				Date/Time			
Received by				Date/Time				Shipped Via				Shipping #			
Special Instructions:															

DISTRIBUTION: Original - LAB. Yellow - LAB. Pink - CH2MHILL



Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: ES1106923	Page	: 1 of 7
Client	: CH2M HILL PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: EMMA WALSH	Contact	: Client Services
Address	:	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: emma.walsh@ch2m.com.au	E-mail	: sydney@alsglobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 420094 01 01 UNIVERSITY OF SYDNEY	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 01-APR-2011
C-O-C number	: 6795	Issue Date	: 08-APR-2011
Sampler	: MICHAEL STRANGER	No. of samples received	: 7
Site	: ABERCROMBIE	No. of samples analysed	: 7
Quote number	: ----		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

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>
Alex Rossi	Organic Chemist	Sydney Organics
Celine Conceicao	Spectroscopist	Sydney Inorganics
Edwandy Fadjar	Senior Organic Chemist	Sydney Organics
Luke Witham	Senior Inorganic Chemist	Sydney Inorganics

Environmental Division Sydney
Part of the **ALS Laboratory Group**

277-289 Woodpark Road Smithfield NSW Australia 2164
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A Campbell Brothers Limited Company



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

- **EP068: Poor matrix spike recoveries due to sample matrix effects.**
- **EP080: Level of reporting raised for toluene due to ambient background levels in the laboratory.**
- **EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**



Analytical Results

Sub-Matrix: GROUNDWATER

Client sample ID

Client sampling date / time

				MW01	MW02	MW03	DUP01	
				01-APR-2011 15:00	01-APR-2011 15:00	01-APR-2011 15:00	01-APR-2011 15:00	----
Compound	CAS Number	LOR	Unit	ES1106923-001	ES1106923-002	ES1106923-003	ES1106923-004	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Copper	7440-50-8	0.001	mg/L	0.002	0.001	0.005	0.002	----
Nickel	7440-02-0	0.001	mg/L	0.011	0.019	0.025	0.012	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.008	<0.001	----
Zinc	7440-66-6	0.005	mg/L	0.058	0.042	0.092	0.058	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	<1	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
4,4'-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
4,4'-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
4,4'-DDT	50-29-3	2	µg/L	<2	<2	<2	<2	----
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Methoxychlor	72-43-5	2	µg/L	<2	<2	<2	<2	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Monocrotophos	6923-22-4	2	µg/L	<2	<2	<2	<2	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----



Analytical Results

Sub-Matrix: GROUNDWATER

Client sample ID

Client sampling date / time

				MW01	MW02	MW03	DUP01	
				01-APR-2011 15:00	01-APR-2011 15:00	01-APR-2011 15:00	01-APR-2011 15:00	----
Compound	CAS Number	LOR	Unit	ES1106923-001	ES1106923-002	ES1106923-003	ES1106923-004	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Parathion-methyl	298-00-0	2	µg/L	<2	<2	<2	<2	----
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Parathion	56-38-2	2	µg/L	<2	<2	<2	<2	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	----
EP080: BTEX								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	----



Analytical Results

Sub-Matrix: GROUNDWATER

Client sample ID

Client sampling date / time

				MW01	MW02	MW03	DUP01	
				01-APR-2011 15:00	01-APR-2011 15:00	01-APR-2011 15:00	01-APR-2011 15:00	----
Compound	CAS Number	LOR	Unit	ES1106923-001	ES1106923-002	ES1106923-003	ES1106923-004	----
EP080: BTEX - Continued								
Toluene	108-88-3	2	µg/L	<5	<5	<5	<5	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	61.0	63.7	63.1	63.8	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	47.3	45.4	55.1	50.9	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	83.9	75.2	76.0	79.9	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	23.9	27.7	17.6	24.5	----
2-Chlorophenol-D4	93951-73-6	0.1	%	52.9	62.9	33.0	61.7	----
2,4,6-Tribromophenol	118-79-6	0.1	%	39.6	42.5	37.5	40.6	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	52.3	46.6	42.9	51.2	----
Anthracene-d10	1719-06-8	0.1	%	59.5	66.5	64.6	66.8	----
4-Terphenyl-d14	1718-51-0	0.1	%	48.9	52.8	54.6	52.8	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	95.8	92.2	99.8	93.3	----
Toluene-D8	2037-26-5	0.1	%	94.6	95.7	102	94.4	----
4-Bromofluorobenzene	460-00-4	0.1	%	101	101	106	98.8	----



Analytical Results

Sub-Matrix: **WATER**

Client sample ID

Client sampling date / time

				RINSATE	TRIP SPIKE	TRIP BLANK		
				01-APR-2011 15:00	31-MAR-2011 15:00	31-MAR-2011 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1106923-005	ES1106923-006	ES1106923-007	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	----	<20	----	----
EP080: BTEX								
Benzene	71-43-2	1	µg/L	<1	16	<1	----	----
Toluene	108-88-3	2	µg/L	<5	15	<5	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	16	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	16	<2	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	16	<2	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	94.4	98.0	84.8	----	----
Toluene-D8	2037-26-5	0.1	%	92.3	103	86.2	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	96.7	103	82.1	----	----



Surrogate Control Limits

Sub-Matrix: GROUNDWATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	14.1	151.8
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	33.6	142.5
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	28.1	147.7
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	64.1
2-Chlorophenol-D4	93951-73-6	11.3	122.9
2,4,6-Tribromophenol	118-79-6	11.7	144.0
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	19.9	122.8
Anthracene-d10	1719-06-8	23.3	125.8
4-Terphenyl-d14	1718-51-0	20.3	134.5
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	76.4	133.1
Toluene-D8	2037-26-5	79.6	126.8
4-Bromofluorobenzene	460-00-4	79.1	125.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	76.4	133.1
Toluene-D8	2037-26-5	79.6	126.8
4-Bromofluorobenzene	460-00-4	79.1	125.0

Appendix G
Calibration Records

RENTALS

Equipment Report -12V Compressor

This Compressor has been performance checked as outlined below:

Cleaned/Tested
Pass?

Power Leads checked



Operation Tested to 100psi



Tank drained



Date: 03.02.11 Checked by: PEPE

Signed: [Signature]

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum \$20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Received	Returned	Item
☒	☐	☐	Compressor with Power leads
☐	☐	☐	Instruction Guide
☒	☐	☐	Transport Case
☒	☐	☐	1/4" Quick connect / pushfit adapter

Options

☐ ☐ ☐
☐ ☐ ☐
☐ ☐ ☐

Processors Signature/ Initials

[Signature]

EE Quote Reference	<u>24267</u>	Condition on return
Customer Ref	<u>271034</u>	
Equipment ID	<u>194101SC</u>	
Equipment serial no.		
Return Date	<u>04/04/11</u>	
Return Time		

Phone: (Free Call) 1300 735 295		Environmental Assessment Technologies		Fax: (Free Call) 1800 657 123	
Melbourne Branch 5 Caribbean Drive, Scoresby 3179 Email: RentalsEnviroVIC@thermofisher.com	Sydney Branch Level 1, 4 Talavera Road, North Ryde 2113 Email: RentalsEnviroNSW@thermofisher.com	Adelaide Branch 27 Beulah Road, Norwood, South Australia 5007 Email: RentalsEnviroSA@thermofisher.com	Brisbane Branch Unit 2/5 Ross St Newstead 4006 Email: RentalsEnviroQLD@thermofisher.com	Perth Branch 121 Beringarra Ave Malaga WA 6090 Email: RentalsEnviroWA@thermofisher.com	

RENTALS

Equipment Report – QED Micropurge MP10 Controller

This pump has been performance checked as follows:

Operations Check	
☒ Components Cleaned / checked	☒ Ops check
☒ Battery check	

Date: 31.03.11 Checked by: PERE

Signed: [Signature]

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum \$20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Received	Returned	Item
☒	☐	☐	MP10 Controller
☒	☐	☐	Compressed gas hose (red)
☒	☐	☐	Operating instructions
☒	☐	☐	Transport Case
☐	☐	☐	Blue coiled air extension tube
☒	☐	☐	Detachable 1/4" push fitting for Blue coiled air extension tube
☐	☐	☐	
☐	☐	☐	

Processors Signature/ Initials [Signature]

EE Quote Reference	<u>24267</u>	Condition on return
Customer Ref	<u>271034</u>	
Equipment ID	<u>QMP10SB</u>	
Equipment serial no.		
Return Date	<u>04 04/11</u>	
Return Time		

RENTALS

Equipment Report – Solinst Model 122 Interface Meter

This Meter has been performance checked / calibrated* as follows:

Cleaned/Tested
Pass?

Probe

☒

Tape/Reel

☒
☒ Performance Test & Battery Voltage Check (8.0v) 8.0v minimum

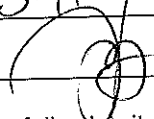
Date:

21.03.11

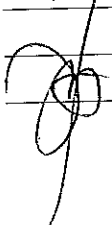
Checked by:

PEPE

Signed:



Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum \$20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Received	Returned	Item
☒	☐	☐	Operations check OK
☒	☐	☐	Plastic Box / Bag
☒	☐	☐	Spare 9V Battery Qty <u>2</u>
☐	☐	☐	Probe Cleaning Brush
☐	☐	☐	Decon
☒	☐	☐	Instruction leaflet
☒	☐	☐	Tape Guide
☐	☐	☐	
Processors Signature/ Initials			

EE Quote Reference	24267	Condition on return
Customer Ref	271034	
Equipment ID	S12230SL	
Equipment serial no.	008843	
Return Date	04/04/11	
Return Time		

RENTALS

Equipment Report - TPS 90FLMV Water Quality Meter

This Water Quality Meter has been performance checked / calibrated* as follows:

pH ☐ pH 6.88 ☒ pH 7.00 ☒ pH 4.00 ☐ pH 10.00 ☐ pH
 Conductivity ☒ 0.0mS/cm ☒ 2.76mS/cm ☐ 12.88mS/cm ☐ 58.6mS/cm ☐ mS/cm
 TDS ☒ 0.0 ppk ☒ 36 ppk ☐ ppk
 Dissolved Oxygen ☒ 0.00ppm in Sodium Sulphite ☒ 100% Saturation in Air
 Redox (ORP)** ☒ Electrode operability test 240mV +/- 10%. Actual: 226mV
☐ Electrodes cleaned/checked ☒ Charged 7.7v (min 7.2V) ☒ Temperature 23.0°C
 Turbidity 0.0 NTU ☐ 90NTU ☐ 360NTU ☐ NTU

* Calibration solution traceability information is available upon request.

 ** This meter uses an Ag/AgCl ORP electrode. To convert readings to SHE (Standard Hydrogen Electrode), add 199mV to the mV reading. For further information, refer to www.enviroequip.com/quipnotes/ORP.htm.

Date: 30/03/2011 Checked by: Jie
 Signed: [Signature]

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum \$20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Received	Returned	Item
☒	☐	☐	90FLMV Unit. Ops check / Battery Voltage @ 8
☒	☐	☐	pH sensor 5m
☒	☐	☐	Conductivity / TDS / Temperature k=10 sensor 5m
☒	☐	☐	Dissolved Oxygen YSI5739 sensor 5m
☒	☐	☐	Redox (ORP) sensor 5m
☒	☐	☐	Battery charger: 240V AC to 12V DC 200mA
☒	☐	☐	Instruction Manual
☒	☐	☐	Quick Guide
☒	☐	☐	Syringe with storage solution for pH & ORP sensors
☐	☐	☐	Turbidity 5m
☒	☐	☐	Carry Case

Processors Signature/ Initials [Signature]

EE Quote Reference	24267	Condition on return
Customer Ref	271034	
Equipment ID	90FLMV SW	
Equipment serial no.	U2042	
Return Date	04/04/11	
Return Time		

"We do more than give you great equipment... We give you great solutions!"

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Melbourne Branch 5 Caribbean Drive, Scoresby 3179 Email: RentalsEnviroVIC@thermofisher.com	Sydney Branch Level 1, 4 Talavera Road, North Ryde 2113 Email: RentalsEnviroNSW@thermofisher.com	Adelaide Branch 27 Beulah Road, Norwood, South Australia 5067 Email: RentalsEnviroSA@thermofisher.com	Brisbane Branch Unit 2/5 Ross St Newstead 4006 Email: RentalsEnviroQLD@thermofisher.com	Perth Branch 121 Beringarra Ave Matsiga WA 6050 Email: RentalsEnviroWA@thermofisher.com	

Appendix H
QA/QC Assessment

Quality Assurance / Quality Control (QA/QC) Procedures

A review of the quality of data has been based on the following:

- Review of the findings of sample analyses against field observations and measurement;
- Review of data quality based on the verification of field QA/QC procedures, evidence of the proper transference of samples (chain-of-custody documentation), and sample analysis (and extraction) within the recommended holding times;
- Analysis of duplicate samples at the project laboratory ('blind duplicates');
- Analysis of a duplicate sample by an independent laboratory ('split duplicates'); and
- Internal laboratory QA/QC analyses including analysis of reagent blanks, spike recoveries and duplicates.

These requirements are defined in NSW EPA approved guidelines and AS4482.

Laboratory Reports

Primary results and Quality Assurance Quality Control (QAQC) results for soil were reported in the ALS certificate of analysis ES1106283. The inter-laboratory duplicate results were reported in Envirolab certificate of analysis 53376.

Primary results and QAQC results for TCLP analysis were reported in the ALS certificates of analysis ES1106938.

Primary results and QAQC results for groundwater were reported in the ALS certificates of analysis ES1106923.

The data quality assessment detailed below refers to the data provided in these laboratory reports.

Data Quality Indicators

Data Quality Indicators (DQIs) are typically developed to provide goals for the quality of data required to sufficiently meet the site-specific objectives of environmental assessments. Precision, accuracy, representativeness, comparability and completeness (PARCC parameters), are all indicators of data quality and attributes of the DQOs. The DQIs used to assess the PARCC parameters for this Phase II EA are detailed in the SAQP and repeated below, along with the non-conformance action, in **Table H-1**. Laboratory results are reported in **Table E - H** in the Tables Section of the Phase II EA.

Table H-1: Summary of Data Quality Indicators		
Data Quality Indicator	Data Quality Indicators	Non-conformance Action
Precision		
Field Duplicate Relative Percentage Differences (RPD) (inter-laboratory and intra-laboratory).	CH2M HILL has developed the following DQIs for field duplicates: - Less than 4 times LOR: plus or minus 2 times LOR - Between 4-10 times LOR: <50% RPD - Greater than 10 times LOR: <30% RPD One intra-laboratory duplicate should be submitted to the primary laboratory every ten samples. One inter-laboratory duplicate should be submitted to the secondary laboratory for every twenty samples.	Assess sample matrix. Request Lab confirmation and if necessary re-analysis. Collect sufficient duplicate samples in the field
Laboratory duplicate RPDs	Laboratory limits specified by the laboratory in their quality control report.	Request Lab confirmation
Method Blanks	Not detected above Laboratory LOR	Request Lab confirmation
Accuracy		
Laboratory Control Samples (LCS)	70% to 130% recovery for inorganics	Request Lab Confirmation
Single Control Spikes (organics)	Specified by the laboratory in the Quality Control Report attached to the laboratory Certificates of Analysis. If no control limits are reported CH2M HILL employs a 70% to 130% recovery	Request Lab Confirmation
Matrix Spikes	Specified by the laboratory in the Quality Control Report attached to the laboratory Certificates of Analysis. If no control limits are reported CH2M HILL employs a 70% to 130% recovery	Request Lab Confirmation
Surrogate Spikes	Based on US EPA surrogate recovery limits	Request Lab Confirmation
Representativeness		
Trip Blanks and Rinsates	Not detected above Laboratory Limit of Reporting	
Trip Spikes and Trip Spike Controls	Percentage recovery 70% - 130%	Request Lab Confirmation
	All fieldwork including decontamination procedures to be undertaken in accordance with CH2M HILL's SOPs.	
	QAQC to be conducted in accordance with NEPC (1999).	
	Samples analysed for the analytes requested on the COC	Request explanation from Lab for non-conformances
	Sample handling, storage and transport to be in accordance with NEPC (1999).	
	Samples to be extracted and analysed within appropriate holding times	Request explanation from Lab for non-conformances
	Samples to be transported under full chain of custody documentation. The laboratory to return a copy of the signed CoC acknowledging the receipt data and time and identity of samples included in the shipment.	
	Include Laboratory Certificates of Analysis which detail any standard and non-standard methods used	
Completeness	100% of results requested for analysis to be reported by Analytical Laboratory and data from all critical samples to be considered valid	Request Lab Confirmation
	Total representative data set to be >95% complete after data validation procedures	Resample if necessary
Comparability	Soil samples to be collected using CH2M HILL's SOPs.	
	Analysis to be undertaken at NATA accredited laboratories utilising NATA accredited methods.	

Table H-1: Summary of Data Quality Indicators		
Data Quality Indicator	Data Quality Indicators	Non-conformance Action
	Detailed soil logs to be completed for each sample location noting any observed variations between soil conditions and signs of potential contamination.	
	Primary samples to be stored, handled and transported under the same conditions and analysed by the same laboratory using consistent methods.	
	DQIs to indicate acceptable Precision and Accuracy.	

Two intra-laboratory duplicate soil samples, two inter-laboratory duplicate soil samples and one intra-laboratory duplicate groundwater sample were collected for analyses during the field program. This is sufficient to meet the requirement for field duplicate analyses of 10 percent of total samples (intra-laboratory) and 20 percent of total soil samples (inter-laboratory). QAQC criteria are summarised in Table H-2 below, together with an assessment of whether these criteria have been met.

Table 1.1 - Summary of Quality Assurance/Quality Control Criteria

Item	Objective	Reference	Summary of Results	Compliance
Comparison of field and analytical data	Agreement between visual, olfactory & PID measurements with laboratory results		No staining or elevated PID readings in the field concurs with volatiles not detected in laboratory samples. Field observations of ash and slag concur with laboratory reports of elevated PAHs.	Yes
Chain of Custody documentation	Completed		Completed in full.	Yes
Analysis of 10% intra-laboratory duplicate samples	RPDs within set limitations	AS4482	All groundwater and the majority of soil RPDs were within set limits. Two metal and one TPH soil RPD were outside of set limit .	Note 1
Analysis of 5% inter-laboratory duplicate samples	RPDs within set limitations	AS4482	The majority of soil RPDs were within set limits. Three metal soil RPDs were outside of set limit.	Note 1
Analysis of field blanks, including trip and equipment rinsates as appropriate	No contamination of blanks		No contamination in blanks	Yes
Analysis of trip spikes	Recovery of 70-130%	AS4482	All 70-130%	Yes
Analysis of laboratory method blanks	No contamination of blanks		All non-detects	Yes
Analysis of matrix spike recoveries	Recoveries 70-130%		Majority of MS recoveries within set limits. Three OPP recoveries less than lower limit in water and one metal recovery for leachable metals not	Note 2

Item	Objective	Reference	Summary of Results	Compliance
			determined	
Analysis of laboratory control samples	Recoveries 70-130%		Majority of LCS recoveries within set limits. Three soil metal, five soil PAH and one water PAH recoveries greater than upper control limits	Note 3
Sample analysis and extraction holding times	Comply with holding time guidelines.	AS4482	Majority conform with guidelines with one exception.	Note 4
Analysis of laboratory duplicates	RPDs within set limitations		Majority of RPDs within set limits. Two soil metal RPDs exceed set limits	Note 5
Calibration of field instruments	Meet calibration specifications	AS4482	Hired equipment was calibrated. PID was not calibrated	Note 6

Note 1: It is likely that these few RPD exceedences are attributed to the heterogeneity of the fill material encountered during the Phase II EA. In addition, the zinc and TPH RPDs were not within the set limits where the contaminants were reported at low concentrations in comparison to the LOR. RPD calculations are sensitive at concentrations close to the analytical LOR and contaminants within the same order of magnitude can exhibit high RPDs. These results are not expected to impact on the validity of the data set.

Note 2: Chlorpyrifos-methyl, pirimphos-ethyl and bromophos-ethyl MS recoveries were less than the lower data quality objective in the water batch. It is noted on the laboratory report that this is likely to be attributed to matrix sample effects. Similarly, zinc MS recovery in the TCLP batch was not determined because the background concentration level was greater than 4 times the spike level.

Note 3: Chromium, lead and nickel LCS recoveries in one soil sample; naphthalene, fluorene, anthracene and pyrene recoveries in another soil sample, and naphthalene in a different soil sample were greater than the upper control limit. It is noted on the laboratory report that, although these recoveries fall outside the ALS dynamic control limits that they are within acceptance criteria based on ALS DQO and therefore no further action is required. Similarly, one naphthalene LCS recovery was greater than the upper control limit.

Note 4: The TCLP leach for organics in sample BH06/0.1-0.3 was undertaken 1 day late in accordance with the analysis holding time limits. This was because the results of the total concentrations needed to be reviewed prior to requesting analysis of the TCLP. This is not considered to have impacted the TCLP results based on a comparison with other TCLP results obtained at the Site.

Note 5: Lead and zinc RPDs in one laboratory duplicate soil sample exceeded the LOR based limit. It is noted on the laboratory report that this is likely to be attributed to sample heterogeneity. The results have been confirmed by re-extraction and re-analysis.

Note 6: It was an oversight of the field staff not to calibrate the PID at the beginning of each day of soil sampling. Laboratory analysis reported no volatile organic compounds above the LOR.

Generally, QAQC requirements are considered to be met if less than 10% of the RPD values calculated exceed the nominated acceptance criteria. The validation of data was considered to be acceptable. Although there were some minor non-conformances, mostly associated with sample heterogeneity and matrix interferences, the majority of the indicators were within the specified Recovery Limits and below the recommended RPDs and therefore, overall, the data is considered to be of sufficient quality to meet the objectives of the Phase II EA.