Attachment C14(g)

Proponent Phase I and Phase II Environmental Site Assessment (7/8)

Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

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

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

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Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 6.1 and Table 1 (14 day holding time).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	* EA200N	SOIL	Asbestos Classification and Quantitation per NEPM 2013 with Confirmation of Identification by AS 4964 - 2004 Gravimetric determination of Asbestos Containing Material, Fibrous Asbestos, Asbestos Fines and sample weight and calculation of percentage concentrations per NEPM protocols. Asbestos (Fines and Fibrous FA+AF) is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2002766**

Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Brenda.Hong@ALSGlobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60623599_1.1	Page	: 1 of 3
Order number	: 60623599_1.1	Quote number	: EB2017AECOMAU0014 (EN/004/16)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Kurtis Wathen, Rebekah Panozzo		

Dates

Date Samples Received	: 29-Jan-2020 15:45	Issue Date	: 31-Jan-2020
Client Requested Due Date	: 06-Feb-2020	Scheduled Reporting Date	: **06-Feb-2020**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not intact.
No. of coolers/boxes	: 2	Temperature	: 6.3' C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 19 / 8

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- This is an updated SRN which indicates samples 19 and 21-28 being transferred from this work order to work order ES2003147.
- **Samples 19 and 21-28 have been transferred to work order ES2003147, as per Alex Latham.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - S-16 TRH/BTEXN/PAH/OC/OP/PCB/8Metals	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2002766-001	28-Jan-2020 00:00	BH109_0.3-0.4		☐	☐		☐
ES2002766-002	28-Jan-2020 00:00	BH109_0.6-0.7	☐				
ES2002766-003	28-Jan-2020 00:00	BH109_0.9-1.0		☐			☐
ES2002766-004	28-Jan-2020 00:00	BH109_1.5-1.6	☐				
ES2002766-005	28-Jan-2020 00:00	BH109_2.7-2.8	☐				
ES2002766-006	28-Jan-2020 00:00	BH109_4.5-4.6	☐				
ES2002766-007	28-Jan-2020 00:00	BH109_6.1-6.2	☐				
ES2002766-009	28-Jan-2020 00:00	BH107_0.2-0.3	☐				
ES2002766-010	28-Jan-2020 00:00	BH107_0.4-0.5			☐		
ES2002766-011	28-Jan-2020 00:00	BH107_0.5-0.6		☐			☐
ES2002766-012	28-Jan-2020 00:00	BH107_0.8-1.0	☐				
ES2002766-013	28-Jan-2020 00:00	BH107_1.5-1.7		☐			☐
ES2002766-014	29-Jan-2020 00:00	BH107_3.9-4.0	☐				
ES2002766-015	29-Jan-2020 00:00	BH107_4.8-5.0	☐				
ES2002766-016	29-Jan-2020 00:00	BH113_0.2-0.3		☐	☐	☐	
ES2002766-017	29-Jan-2020 00:00	BH113_0.4-0.5	☐				
ES2002766-018	29-Jan-2020 00:00	BH113_0.6-0.7		☐	☐		☐
ES2002766-020	29-Jan-2020 00:00	BH113_1.3-1.38	☐				

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2002766-008	28-Jan-2020 00:00	QC300 TB	☐

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

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

ALEX LATHAM

- *AU Certificate of Analysis - NATA (COA)	Email	alex.latham@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	alex.latham@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	alex.latham@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	alex.latham@aecom.com
- Chain of Custody (CoC) (COC)	Email	alex.latham@aecom.com
- Chromatogram (CHROM)	Email	alex.latham@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	alex.latham@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	alex.latham@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	alex.latham@aecom.com
- EDI Format - XTab (XTAB)	Email	alex.latham@aecom.com
- Electronic SRN for EQuIS (ESRN_EQUIS)	Email	alex.latham@aecom.com

30/1/20 13:40

60623599 Burrows IE 1 of 2

UPDATED COC

CHAIN OF CUSTODY

AECOM Australia Pty Ltd		**Laboratory Details**	
Sydney (420 George St)	T: 02 8934 0451	Lab Name: ALS	Tel: 8784 8515
	M: 0400 973 821	Lab Address: 277 Woodpark Rd, Smithfield	Fax:
AECOM Project Manager: Alex Latham		Contact Name: Brenda Hong	Preliminary Report by:
AECOM Project Manager Email: **Alex.Latham@aecom.com**		Lab. Ref:	Final Report by:
			Lab Quote No: **EN/004/16**
Sampled By: Kurtis Wathen / Rebekah Panozzo	AECOM Project No: **60623599_1.1**	Project Name: Burrows IE	PO No. refer Project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis & XLS format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details:)	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filtered	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200N)	HOLD		TRH > C10-C40 (EP071)	
1	BH109_0.3-0.4	28/1/20	X					X		1 Jar 180g	✓	✓	✓		✓				
2	BH109_0.6-0.7															✓			
3	BH109_0.9-1.0										✓	✓	✓						
4	QC102									1 Jar	S	E	N	D		T	C	ENVIRO1	
5	BH109_1.5-1.6									1 Jar 180g						✓			
6	BH109_2.7-2.8									" "						✓			
7	BH109_4.5-4.6									1 Jar						✓			
8	BH109_6.1-6.2									1 Jar						✓			
9	QC300			X						2 vials								✓	
10	BH107_0.2-0.3															✓			
11	BH107_0.4-0.5														✓				
12	BH107_0.5-0.6										✓	✓	✓						
13	BH107_0.8-1.0															✓			
14	BH107_1.5-1.7										✓	✓	✓						

Analysis Request

send requested soil QC samples to Envirolab with crushed ice please

Environmental Division Sydney
Work Order Reference
ES2002766

Telephone : +61-2-8784 8555

Lab Report No | Esky ID

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments:

Relinquished by: K. Wathen	Signed:	Date: 29/1/20	
Recieved by:	Signed:	Date:	
Relinquished by:	Signed:	Date:	
Recieved by:	Signed: 29/1/20	3:45 Date:	

1125

30/11/20 13:40

60693599 BURROWS IE 2 of 2 **UPDATED COC**

CHAIN OF CUSTODY

AECOM Australia Pty Ltd		**Laboratory Details**	
Sydney (420 George St)	T: 02 8934 0451	Lab Name: **ALS**	Tel: 8784 8515
	M: 0400 973 821	Lab Address: 277 Woodpark Rd, Smithfield	Fax:
AECOM Project Manager: Alex Latham		Contact Name: Brenda Hong	Preliminary Report by:
AECOM Project Manager Email: **Alex.Latham@aecom.com**		Lab. Ref:	Final Report by:
			Lab Quote No: **EN/004/16**
Sampled By: Kurtis Wathen / Rebekah Panozzo	AECOM Project No: **60623599_1.1**	Project Name: Burrows IE	PO No. refer Project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis & XLS format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr __5__days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filt'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200N)	HOLD	TRH > C10-C40 (EP071)	send requested soil QC samples to Envirolab with crushed ice please
15	BH107_3.9-4.0	29/11	✓					✓		J+P						✓		
16	BH107_4.8-5.0									J+P						✓		
17	BH113_0.2-0.3									J+P	✓	✓	✓	✓	✓			
18	BH113_0.4-0.5									J+P						✓		
19	BH113_0.6-0.7									J+P	✓	✓	✓		✓			
20	QC106									J	SEND TO ENVIROLAB							
21	BH113_0.8-1.0									J+P						✓		
22	BH113_1.3-1.8									J						✓		
	QC105									J	SEND TO ENVIROLAB							
	QC104																	
22	BH110_0.35-0.36																	
23	" 0.40-0.6																	
24	" 0.9-1.0																	
25	" 1.2-1.3																	

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* Metals Required:	As, Cd, Cr, Cu, Hg, Ni, Pb, Zn	Comments:	Lab Report No.	Esky ID
Relinquished by: L. Panozzo	Signed:	Date: 29/11	Relinquished by:	Signed:	Date:
Recieved by:	Signed:	Date:	Recieved by: IAZ	Signed: 29/11/20	Date:

Field_Worksheet_FORM025_Dec04

5 - 5.1

24 6.1-6.2

BH108_4.1-4.2

CHAIN OF CUSTODY

AECOM Australia Pty Ltd		Laboratory Details	
Sydney (420 George St)	T: 02 8934 0451	Lab Name: **ALS**	Tel: 8784 8515
	M: 0400 973 821	Lab Address: 277 Woodpark Rd, Smithfield	Fax:
AECOM Project Manager: Alex Latham		Contact Name: Brenda Hong	Preliminary Report by:
AECOM Project Manager Email: **Alex.Latham@aecom.com**		Lab. Ref:	Final Report by:
			Lab Quote No: **EN/004/16**

Sampled By: Kurtis Wathen / Rebekah Panozzo | AECOM Project No: **60623599_1.1** | Project Name: Burrows IE | PO No. refer Project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis & XLS format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr ___5__days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filt'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200N)	TRH > C10-C40 (EP071)
1	BH109_0.3-0.4	28/11/20	X					X		1 Jar 1 Bag						
2	BH109_0.6-0.7															
3	BH109_0.9-1.0															
4	QC102									1 Jar						
5	BH109_1.5-1.6									1 Jar 1 Bag						
6	BH109_2.7-2.8									" "						
7	BH109_4.5-4.6									1 Jar						
8	BH109_6.1-6.2									1 Jar						
9	QC300			X						2 vials						X
10	BH107_0.2-0.3															
11	BH107_0.4-0.5															
12	BH107_0.5-0.6															
13	BH107_0.8-1.0															
14	BH107_1.5-1.7															

Subcon / Forward Lab / Split WO
Lab / Analysis: _____
Organised By / Date: ENVIRO 29/11/20
Relinquished By / Date: _____
Courier: _____
WO No: _____
Attached By PO / Internal Sheet: _____

Analysis Request

send requested soil QC samples to Envirolab with crushed ice please

* Metals Required:	As, Cd, Cr, Cu, Hg, Ni, Pb, Zn	Comments:	Lab Report No.	Esky ID

Relinquished by: K. Wathen	Signed:	Date: 29/11/20	Relinquished by:	Signed:	Date:
Recieved by:	Signed:	Date:	Recieved by: HAO	Signed: 29/11/20 3:45pm	Date:

CHAIN OF CUSTODY

AECOM Australia Pty Ltd
Sydney (420 George St)
T: 02 8934 0451
M: 0400 973 821
AECOM Project Manager: Alex Latham
AECOM Project Manager Email: **Alex.Latham@aecom.com**

Laboratory Details
Lab Name: **ALS**
Lab Address: 277 Woodpark Rd, Smithfield
Contact Name: Brenda Hong
Lab. Ref:
Tel: 8784 8515
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: **EN/004/16**

Sampled By: Kurt Wathen / Rebekah Panozzo
AECOM Project No: **60623599_1.1**
Project Name: Burrows IE
PO No. refer Project #

Specifications: All reports to be emailed to AECOM Project Manager — Yes
ESDAT & Equis & XLS format also required
1 - Urgent TAT required? (please circle: 24hr 48hr ___5__days)
2 - Fast TAT Guarantee Required?
3 - Is any sediment layer present in waters to be excluded from extractions?
4 - Is extraneous material removed from samples to be reported as per NEPM 5.1.1?
5 - Special storage requirements? (details: _____)

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filt'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)
15	BH107 - 3.9-4.0	29/11	Y					Y		J+B
16	BH107 - 4.8-5.0									J+B
17	BH113 - 0.2-0.3									J+B
18	BH113 - 0.4-0.5									J+B
19	BH113 - 0.6-0.7									J+B
20	QC106									J
21	BH113 - 0.8-1.0									J+B
22	BH113 - 1.3-1.38									J

Analysis Request

TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200N)	TRH > C10-C40 (EP071)

send requested soil QC samples to Envirolab with crushed ice please

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* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments:

Lab Report No.

Esky ID

Relinquished by: R Panozzo — Signed: — Date: 29/11

Recieved by: — Signed: — Date:

Relinquished by: — Signed: — Date:

Recieved by: — Signed: 29/11/2016 3:40 — Date:

Field_WorkSheet_FORM025_Dec04

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2002807**	Page	: 1 of 13
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: PO BOX Q410 QVB POST OFFICE SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1	Date Samples Received	: 28-Jan-2020 17:00
Order number	: 60623599_1.1	Date Analysis Commenced	: 31-Jan-2020
C-O-C number	: ----	Issue Date	: 05-Feb-2020 20:53
Sampler	: Kurtis Wathen, REBEKAH PANOZZO		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 21		
No. of samples analysed	: 8		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

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

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

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

Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

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General Comments

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

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

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

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

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

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

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
  Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
  The Asbestos (Fines and Fibrous) weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
  Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
  All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH106_0.2-0.3	BH106_4.0-4.1	BH108_0.15-0.25	BH108_0.35-0.45	BH108_1.3-1.4
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00
				ES2002807-001	ES2002807-006	ES2002807-008	ES2002807-009	ES2002807-013
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	22.6	46.0	----	31.0	15.8
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	No	No
Asbestos Type	1332-21-4	-	--	-	----	-	-	-
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	No	No	No
Sample weight (dry)	----	0.01	g	314	----	221	113	82.6
Synthetic Mineral Fibre	----	0.1	g/kg	No	----	No	No	No
Organic Fibre	----	0.1	g/kg	No	----	No	No	No
APPROVED IDENTIFIER:	----	-	--	A. SMYLIE	----	A. SMYLIE	A. SMYLIE	A. SMYLIE
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	<0.0004	----	<0.0004	<0.0004	<0.0004
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	<0.001	----	<0.001	<0.001	<0.001
ø Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	<0.1	<0.1
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	----	<0.01	<0.01	<0.01
ø Weight Used for % Calculation	----	0.0001	kg	0.314	----	0.221	0.113	0.0826
ø Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	----	<0.0004	<0.0004	<0.0004
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	6	8	----	6	30
Cadmium	7440-43-9	1	mg/kg	2	<1	----	<1	96
Chromium	7440-47-3	2	mg/kg	9	6	----	46	320
Copper	7440-50-8	5	mg/kg	86	7	----	171	15500
Lead	7439-92-1	5	mg/kg	232	18	----	255	3160
Nickel	7440-02-0	2	mg/kg	12	3	----	95	823
Zinc	7440-66-6	5	mg/kg	426	111	----	238	23400
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.3	<0.1	----	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH106_0.2-0.3	BH106_4.0-4.1	BH108_0.15-0.25	BH108_0.35-0.45	BH108_1.3-1.4
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00
				ES2002807-001	ES2002807-006	ES2002807-008	ES2002807-009	ES2002807-013
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
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	----	----	----	----
^ Total Chlordane (sum)	----	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	----	----	----	----
Endosulfan (sum)	115-29-7	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	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg	<0.05	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH106_0.2-0.3	BH106_4.0-4.1	BH108_0.15-0.25	BH108_0.35-0.45	BH108_1.3-1.4
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00
				ES2002807-001	ES2002807-006	ES2002807-008	ES2002807-009	ES2002807-013
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
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
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	**0.6**	<0.5	----	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	**2.1**	<0.5	----	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	**2.2**	<0.5	----	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	**1.1**	<0.5	----	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	**1.2**	<0.5	----	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	**2.1**	<0.5	----	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	**0.8**	<0.5	----	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	**1.9**	<0.5	----	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	**1.2**	<0.5	----	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	**1.6**	<0.5	----	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	**14.8**	<0.5	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	**2.4**	<0.5	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**2.7**	**0.6**	----	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**2.9**	**1.2**	----	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	----	<100
C29 - C36 Fraction	----	100	mg/kg	**120**	<100	----	----	<100

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH106_0.2-0.3	BH106_4.0-4.1	BH108_0.15-0.25	BH108_0.35-0.45	BH108_1.3-1.4
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00
				ES2002807-001	ES2002807-006	ES2002807-008	ES2002807-009	ES2002807-013
				Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued								
^ C10 - C36 Fraction (sum)	----	50	mg/kg	120	<50	----	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	----	----	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg	180	<100	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	180	<50	----	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	----	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	----	----	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	84.6	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	88.0	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	68.8	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	74.4	69.3	----	68.6	71.9
2-Chlorophenol-D4	93951-73-6	0.5	%	82.0	80.0	----	80.6	84.1
2.4.6-Tribromophenol	118-79-6	0.5	%	60.0	45.3	----	43.9	42.2
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	94.4	94.3	----	104	102
Anthracene-d10	1719-06-8	0.5	%	90.8	93.4	----	101	99.8
4-Terphenyl-d14	1718-51-0	0.5	%	93.3	95.3	----	104	104

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH106_0.2-0.3	BH106_4.0-4.1	BH108_0.15-0.25	BH108_0.35-0.45	BH108_1.3-1.4
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00
				ES2002807-001	ES2002807-006	ES2002807-008	ES2002807-009	ES2002807-013
				Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**106**	**80.7**	**----**	**----**	**110**
Toluene-D8	2037-26-5	0.2	%	**99.1**	**81.0**	**----**	**----**	**103**
4-Bromofluorobenzene	460-00-4	0.2	%	**94.0**	**72.7**	**----**	**----**	**92.8**

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH108_2.3-2.4	BH108_4.1-4.2	QC100	----	----
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	----	----
				ES2002807-014	ES2002807-017	ES2002807-020	--------	--------
				Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	----	34.5	----	----	----
Moisture Content	----	1.0	%	22.1	----	9.8	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----
Asbestos Type	1332-21-4	-	--	-	----	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	----	----	----
Sample weight (dry)	----	0.01	g	65.1	----	----	----	----
Synthetic Mineral Fibre	----	0.1	g/kg	No	----	----	----	----
Organic Fibre	----	0.1	g/kg	No	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	A. SMYLIE	----	----	----	----
EA200N: Asbestos Quantification (non-NATA)								
Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	<0.0004	----	----	----	----
Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	<0.001	----	----	----	----
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	----	----	----	----
Weight Used for % Calculation	----	0.0001	kg	0.0651	----	----	----	----
Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	48	----	6	----	----
Cadmium	7440-43-9	1	mg/kg	5	----	<1	----	----
Chromium	7440-47-3	2	mg/kg	300	----	8	----	----
Copper	7440-50-8	5	mg/kg	5050	----	46	----	----
Lead	7439-92-1	5	mg/kg	3880	----	113	----	----
Nickel	7440-02-0	2	mg/kg	65	----	10	----	----
Zinc	7440-66-6	5	mg/kg	4280	----	106	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	<0.1	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	<0.1	----	----
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	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH108_2.3-2.4	BH108_4.1-4.2	QC100	----	----
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	----	----
				ES2002807-014	ES2002807-017	ES2002807-020	--------	--------
				Result	Result	Result	----	----
EP068A: Organochlorine Pesticides (OC) - Continued								
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	----	----
^ Total Chlordane (sum)	----	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	----	----
^ Endosulfan (sum)	115-29-7	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	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	----	<0.05	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg	----	----	<0.05	----	----
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	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH108_2.3-2.4	BH108_4.1-4.2	QC100	----	----
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	----	----
				ES2002807-014	ES2002807-017	ES2002807-020	--------	--------
				Result	Result	Result	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
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	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	**1.8**	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	**0.7**	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	**5.3**	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	**5.0**	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	**2.3**	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	**2.3**	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	----	**3.3**	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	**1.2**	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	**3.1**	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	**1.7**	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	**2.2**	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	**28.9**	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	**4.0**	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	----	**4.2**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	----	**4.5**	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH108_2.3-2.4	BH108_4.1-4.2	QC100	----	----
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	----	----
				ES2002807-014	ES2002807-017	ES2002807-020	--------	--------
				Result	Result	Result	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued								
C29 - C36 Fraction	----	100	mg/kg	<100	<100	**110**	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	**110**	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	**170**	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	**170**	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	**102**	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	----	**90.1**	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	----	**80.9**	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**73.2**	----	**76.3**	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	**81.0**	----	**84.2**	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%	**46.2**	----	**62.4**	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**92.2**	----	**96.7**	----	----
Anthracene-d10	1719-06-8	0.5	%	**91.1**	----	**91.6**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH108_2.3-2.4	BH108_4.1-4.2	QC100	----	----
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	----	----
				ES2002807-014	ES2002807-017	ES2002807-020	--------	--------
				Result	Result	Result	----	----
EP075(SIM)T: PAH Surrogates - Continued								
4-Terphenyl-d14	1718-51-0	0.5	%	**95.0**	**----**	**94.3**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**89.0**	**116**	**89.3**	**----**	**----**
Toluene-D8	2037-26-5	0.2	%	**83.0**	**107**	**97.4**	**----**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%	**77.3**	**102**	**92.8**	**----**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: SOIL

EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH106_0.2-0.3 - 28-Jan-2020 00:00	Mid brown soil.
EA200: Description	BH108_0.15-0.25 - 28-Jan-2020 00:00	Mid grey soil.
EA200: Description	BH108_0.35-0.45 - 28-Jan-2020 00:00	Mid grey soil.
EA200: Description	BH108_1.3-1.4 - 28-Jan-2020 00:00	Mid brown soil.
EA200: Description	BH108_2.3-2.4 - 28-Jan-2020 00:00	Mid brown soil.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
□□ □□□□□	□□ □□□ □□	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

QUALITY CONTROL REPORT

Work Order	: **ES2002807**	Page	: 1 of 11
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: PO BOX Q410 QVB POST OFFICE SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1	Date Samples Received	: 28-Jan-2020
Order number	: 60623599_1.1	Date Analysis Commenced	: 31-Jan-2020
C-O-C number	: ----	Issue Date	: 05-Feb-2020
Sampler	: Kurtis Wathen, REBEKAH PANOZZO		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 21		
No. of samples analysed	: 8		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

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

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

Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

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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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2836485)									
ES2002719-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	40	41	0.00	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	133	133	0.00	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	39	40	2.80	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	51	52	2.46	0% - 50%
ES2002807-006	BH106_4.0-4.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	7	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	3	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	9	20.3	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	7	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	18	12	38.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	111	119	7.33	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2836488)									
ES2002719-002	Anonymous	EA055: Moisture Content	---	0.1	%	5.9	5.6	4.70	No Limit
ES2002807-013	BH108_1.3-1.4	EA055: Moisture Content	---	0.1	%	15.8	13.3	17.2	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2836601)									
ES2002645-001	Anonymous	EA055: Moisture Content	---	0.1	%	10.0	10.8	8.20	0% - 20%
ES2002856-003	Anonymous	EA055: Moisture Content	---	0.1	%	10.8	10.5	2.05	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2836486)									
ES2002719-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES2002807-006	BH106_4.0-4.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2834945)									

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2834945) - continued									
ES2002729-001	Anonymous	EP066: Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2834944)									
ES2002729-001	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2834944)									
ES2002729-001	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2834944) - continued									
ES2002729-001	Anonymous	EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2834942)									
ES2002807-014	BH108_2.3-2.4	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	---	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	---	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES2002729-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2834942) - continued									
ES2002729-001	Anonymous	EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2834520)									
ES2002547-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES2002547-011	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2834894)									
ES2002719-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES2002901-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2834943)									
ES2002807-014	BH108_2.3-2.4	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES2002729-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2834520)									
ES2002547-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES2002547-011	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2834894)									
ES2002719-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES2002901-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2834943)									
ES2002807-014	BH108_2.3-2.4	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES2002729-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 2834520)									
ES2002547-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES2002547-011	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 2834520) - continued									
ES2002547-011	Anonymous	EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP080: BTEXN (QC Lot: 2834894)									
ES2002719-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES2002901-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

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

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

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2836485)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	102	86.0	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	96.2	83.0	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	111	76.0	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	98.9	86.0	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	96.7	80.0	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	102	87.0	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	102	80.0	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2836486)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	77.0	70.0	105
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2834945)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	89.0	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 2834944)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	102	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	102	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.9	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	103	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	106	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	107	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.5	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	104	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	101	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	107	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	102	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.4	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	87.5	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	101	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	94.2	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	93.1	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2834944)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2834944) - continued								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	105	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.1	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	78.2	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	97.3	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	98.9	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	95.8	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	101	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	96.1	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	97.0	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	106	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	97.9	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	95.2	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	100	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	84.0	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	95.2	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	101	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	99.6	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	66.3	41.0	123
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2834942)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	99.3	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	105	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	101	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	102	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	103	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	106	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	109	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	112	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	96.8	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	99.6	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	93.3	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	102	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	104	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	97.8	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	98.3	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	98.4	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2834520)								
EP080: C6 - C9 Fraction	---	10	mg/kg	<10	26 mg/kg	89.2	68.4	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2834894)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	96.1	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2834943)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	93.6	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	94.2	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	89.7	71.0	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2834520)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	84.0	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2834894)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	96.5	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2834943)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	94.6	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	92.0	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	78.3	63.0	131
EP080: BTEXN (QCLot: 2834520)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	108	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	98.7	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	95.7	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	95.2	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	97.8	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	89.7	63.0	119
EP080: BTEXN (QCLot: 2834894)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	96.9	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	103	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	104	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	102	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	105	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	113	63.0	119

Matrix Spike (MS) Report

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

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2836485)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2836485) - continued							
ES2002719-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	95.6	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	89.6	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	80.7	70.0	130
		EG005T: Copper	7440-50-8	250 mg/kg	101	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	90.2	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	81.6	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	84.7	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2836486)							
ES2002719-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	88.9	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2834945)							
ES2002729-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	102	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2834944)							
ES2002729-001	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	85.9	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	92.9	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	92.8	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	109	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	111	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	107	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2834944)							
ES2002729-001	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	96.7	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	77.7	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	76.9	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	93.0	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	104	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2834942)							
ES2002729-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	105	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	115	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2834520)							
ES2002547-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	99.8	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2834894)							
ES2002719-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	104	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2834943)							
ES2002729-001	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	91.0	73.0	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	85.1	53.0	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	74.4	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2834520)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2834520) - continued							
ES2002547-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	95.4	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2834894)							
ES2002719-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	111	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2834943)							
ES2002729-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	100	73.0	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	79.7	53.0	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	54.8	52.0	132
EP080: BTEXN (QCLot: 2834520)							
ES2002547-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	106	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	99.7	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	102	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	100.0	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	102	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	91.2	70.0	130
EP080: BTEXN (QCLot: 2834894)							
ES2002719-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	93.0	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	92.2	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	109	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	106	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	111	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	121	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2002807**	Page	: 1 of 6
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1	Date Samples Received	: 28-Jan-2020
Site	: ----	Issue Date	: 05-Feb-2020
Sampler	: Kurtis Wathen, REBEKAH PANOZZO	No. of samples received	: 21
Order number	: 60623599_1.1	No. of samples analysed	: 8

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

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Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

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

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

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

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

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

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
BH106_0.2-0.3,	BH106_4.0-4.1,	**28-Jan-2020**	**----**	----	----	**31-Jan-2020**	11-Feb-2020	✓
BH108_0.35-0.45,	BH108_1.3-1.4,							
BH108_2.3-2.4,	BH108_4.1-4.2,							
QC100								
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)								
BH106_0.2-0.3,	BH108_0.15-0.25,	**28-Jan-2020**	**----**	----	----	**03-Feb-2020**	26-Jul-2020	✓
BH108_0.35-0.45,	BH108_1.3-1.4,							
BH108_2.3-2.4								
EA200N: Asbestos Quantification (non-NATA)								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)								
BH106_0.2-0.3,	BH108_0.15-0.25,	**28-Jan-2020**	**----**	----	----	**03-Feb-2020**	26-Jul-2020	✓
BH108_0.35-0.45,	BH108_1.3-1.4,							
BH108_2.3-2.4								
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
BH106_0.2-0.3,	BH106_4.0-4.1,	**28-Jan-2020**	**01-Feb-2020**	26-Jul-2020	✓	**03-Feb-2020**	26-Jul-2020	✓
BH108_0.35-0.45,	BH108_1.3-1.4,							
BH108_2.3-2.4,	QC100							
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
BH106_0.2-0.3,	BH106_4.0-4.1,	**28-Jan-2020**	**01-Feb-2020**	25-Feb-2020	✓	**03-Feb-2020**	25-Feb-2020	✓
BH108_0.35-0.45,	BH108_1.3-1.4,							
BH108_2.3-2.4,	QC100							
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066)								
BH106_0.2-0.3,	QC100	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**03-Feb-2020**	11-Mar-2020	✓
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068)								
BH106_0.2-0.3,	QC100	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**03-Feb-2020**	11-Mar-2020	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068)								
BH106_0.2-0.3,	QC100	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**03-Feb-2020**	11-Mar-2020	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH106_0.2-0.3,	BH106_4.0-4.1,	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**01-Feb-2020**	11-Mar-2020	✓
BH108_0.35-0.45,	BH108_1.3-1.4,							
BH108_2.3-2.4,	QC100							
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP071)								
BH106_0.2-0.3,	BH106_4.0-4.1,	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**01-Feb-2020**	11-Mar-2020	✓
BH108_1.3-1.4,	BH108_2.3-2.4,							
BH108_4.1-4.2,	QC100							
Soil Glass Jar - Unpreserved (EP080)								
QC100		**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**04-Feb-2020**	11-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP080)								
BH106_0.2-0.3,	BH106_4.0-4.1,	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**31-Jan-2020**	11-Feb-2020	✓
BH108_1.3-1.4,	BH108_2.3-2.4,							
BH108_4.1-4.2								
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP071)								
BH106_0.2-0.3,	BH106_4.0-4.1,	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**01-Feb-2020**	11-Mar-2020	✓
BH108_1.3-1.4,	BH108_2.3-2.4,							
BH108_4.1-4.2,	QC100							
Soil Glass Jar - Unpreserved (EP080)								
QC100		**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**04-Feb-2020**	11-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP080)								
BH106_0.2-0.3,	BH106_4.0-4.1,	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**31-Jan-2020**	11-Feb-2020	✓
BH108_1.3-1.4,	BH108_2.3-2.4,							
BH108_4.1-4.2								
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
QC100		**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**04-Feb-2020**	11-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP080)								
BH106_0.2-0.3,	BH106_4.0-4.1,	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**31-Jan-2020**	11-Feb-2020	✓
BH108_1.3-1.4,	BH108_2.3-2.4,							
BH108_4.1-4.2								

Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	4	33	**12.12**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 6.1 and Table 1 (14 day holding time).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	* EA200N	SOIL	Asbestos Classification and Quantitation per NEPM 2013 with Confirmation of Identification by AS 4964 - 2004 Gravimetric determination of Asbestos Containing Material, Fibrous Asbestos, Asbestos Fines and sample weight and calculation of percentage concentrations per NEPM protocols. Asbestos (Fines and Fibrous FA+AF) is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.

Preparation Methods	Method	Matrix	Method Descriptions

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2002807**

Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: PO BOX Q410 QVB POST OFFICE SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Brenda.Hong@ALSGlobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60623599_1.1	Page	: 1 of 3
Order number	: 60623599_1.1	Quote number	: EB2017AECOMAU0014 (EN/004/16)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Kurtis Wathen, REBEKAH PANOZZO		

Dates

Date Samples Received	: 28-Jan-2020 17:00	Issue Date	: 31-Jan-2020
Client Requested Due Date	: 05-Feb-2020	Scheduled Reporting Date	: **05-Feb-2020**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 2.6
Receipt Detail	:	No. of samples received / analysed	: 21 / 8

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- This is an updated SRN which indicates the addition of samples QC100 and QC101 to this work order, as per Alex Latham.
- **Volatile organic compound analysis may be compromised as sample containers contained headspace. Please contact ALS for further information.**
- **Please note that samples BH106_0.2-0.3 and BH108_2.3-2.4 contained water upon receipt. The laboratory suspects lids were not fully secure during transit.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

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

No sample container / preservation non-compliance exists.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - EP075 SIM PAH only SIM - PAH only	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-13 OC/OP/PCB	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2002807-001	28-Jan-2020 00:00	BH106_0.2-0.3		☐	☐			☐	☐
ES2002807-002	28-Jan-2020 00:00	BH106_0.4-0.5	☐						
ES2002807-003	28-Jan-2020 00:00	BH106_0.8-0.9	☐						
ES2002807-004	28-Jan-2020 00:00	BH106_1.7-1.8	☐						
ES2002807-005	28-Jan-2020 00:00	BH106_2.7-2.8	☐						
ES2002807-006	28-Jan-2020 00:00	BH106_4.0-4.1		☐					☐
ES2002807-007	28-Jan-2020 00:00	BH106_6.0-6.1	☐						
ES2002807-008	28-Jan-2020 00:00	BH108_0.15-0.25			☐				
ES2002807-009	28-Jan-2020 00:00	BH108_0.35-0.45		☐	☐	☐	☐		
ES2002807-010	28-Jan-2020 00:00	BH108_0.5-0.6	☐						
ES2002807-011	28-Jan-2020 00:00	BH108_0.7-0.8	☐						
ES2002807-012	28-Jan-2020 00:00	BH108_0.85-0.9	☐						
ES2002807-013	28-Jan-2020 00:00	BH108_1.3-1.4		☐	☐				☐
ES2002807-014	28-Jan-2020 00:00	BH108_2.3-2.4		☐	☐				☐
ES2002807-015	28-Jan-2020 00:00	BH108_2.5-2.6	☐						
ES2002807-016	28-Jan-2020 00:00	BH108_2.8-2.9	☐						
ES2002807-017	28-Jan-2020 00:00	BH108_4.1-4.2		☐					
ES2002807-018	28-Jan-2020 00:00	BH108_4.3-4.4	☐						
ES2002807-019	28-Jan-2020 00:00	BH108_4.9-5.0	☐						
ES2002807-020	28-Jan-2020 00:00	QC100		☐				☐	☐
ES2002807-021	28-Jan-2020 00:00	QC101	☐						

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-04 TRH/BTEXN
ES2002807-017	28-Jan-2020 00:00	BH108_4.1-4.2	☐

Proactive Holding Time Report

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

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

ALEX LATHAM

- *AU Certificate of Analysis - NATA (COA)	Email	alex.latham@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	alex.latham@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	alex.latham@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	alex.latham@aecom.com
- Chain of Custody (CoC) (COC)	Email	alex.latham@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	alex.latham@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	alex.latham@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	alex.latham@aecom.com
- EDI Format - XTab (XTAB)	Email	alex.latham@aecom.com
- Electronic SRN for EQuIS (ESRN_EQUIS)	Email	alex.latham@aecom.com

60623599_1.1 Burrows IE 1 of 2

CHAIN OF CUSTODY

AECOM Australia Pty Ltd
Sydney (420 George St)
T: 02 8934 0451
M: 0400 973 821
AECOM Project Manager: Alex Latham
AECOM Project Manager Email: Alex.Latham@aecom.com
Sampled By: Kurtis Wathen / Rebekah Panozzo
AECOM Project No: 60623599_1.1

Laboratory Details
Lab Name: ALS
Lab Address: 277 Woodpark Rd, Smithfield
Contact Name: Brenda Hong
Lab. Ref:
Tel: 8784 8515
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: EN/004/16
Project Name: Burrows IE
PO No. refer Project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis & XLS format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details:)	

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filtered	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	TRH C6-C40, BTEXN	PAH	B Metals	OCP, OPP, PCB	Asbestos (EA200N)	TRH > C10-C40 (EP071)	HOLD	send requested soil QC samples to Envirolab with crushed ice please
1	BH106_0.2-0.3	28/11/15	Y					Y		Jar/Bag 2	✓	✓	✓	✓	✓			
-	QC100									Jar 1	✓	✓	✓	✓				
2	BH106_0.4-0.5									Jar/Bag 2							✓	
3	BH106_0.8_0.9									Jar/Bag 2							✓	
4	BH106_1.7-1.8									Jar/Bag 2							✓	
5	BH106_2.7_2.8									Jar 1							✓	
6	BH106_4.0_4.1									Jar/Bag	✓	✓	✓					
7	BH106_6.0_6.1									Jar/Bag							✓	
8	BH108_0.15_0.25														✓			
9	BH108_0.35_0.45											✓	✓		✓			
10	BH108_0.5_0.6																✓	
11	BH108_0.7_0.8																✓	
12	BH108_0.85-0.9																✓	
13	BH108_1.3_1.4										✓	✓	✓		✓			

Comments: Eurofins / Forward Lab / Split WO

*Details Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Relinquished by: Signed: Date:
Received by: Signed: Date:

Relinquished by: Signed: 29/11/15
Received by: Signed:

Lab / Address: Envirolab

Field_Worksheet_FORM025_Dec04

Organised By / Date: Rebekah
Relinquished By / Date:
Connote / Courier: Fedex
WO No: Envirolab / QC100 - QC101
Attach By PO / Internal Sheet:

1162

Environmental Division
Sydney
Work Order Reference
ES2002807

Telephone : + 61-2-8784 8555

CHAIN OF CUSTODY

AECOM Australia Pty Ltd
Sydney (420 George St)
T: 02 8934 0451
M: 0400 973 821
AECOM Project Manager: Alex Latham
AECOM Project Manager Email: Alex.Latham@aecom.com
Sampled By: Kurtis Wathen / Rebekah Panozzo
AECOM Project No: 60623599_1.1

Laboratory Details
Lab Name: ALS
Lab Address: 277 Woodpark Rd, Smithfield
Contact Name: Brenda Hong
Lab. Ref:
Project Name: Burrows IE
Tel: 8784 8515
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: EN/004/16
PO No. refer Project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis & XLS format also required

	Yes
1 Urgent TAT required? (please circle: 24hr 48hr ___5__days)	
2 Fast TAT Guarantee Required?	
3 Is any sediment layer present in waters to be excluded from extractions?	
4 % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5 Special storage requirements? (details)	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filtrad	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200N)	TRH > C10-C40 (EP071)	HOLD	send requested soil QC samples to Envirolab with crushed ice please
—	~~BH108~~ QC101	28/1/20	X					X		1 Jar							✓	
14	BH108_2.3-2.4									1 Jar	✓	✓	✓	✓			✓	
15	BH108_2.5-2.6																✓	
16	BH108_2.8-2.9										✓						✓	
17	BH108_4.1-4.2									1 Jar							✓	
18	BH108_4.3-4.4									1 Jar								
19	DH108_4.9-5.0																	

Comments:

* Metals: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Relinquished by:	Signed:	Date:	Signed:
Recieved by:	Signed:	Date:	Date:
Relinquished by:			Signed: Date:
Recieved by:	28/1/20		Signed: Date:

Field Worksheet FORM02b Dec04

Fadi Soro

From: Brenda Hong
Sent: Wednesday, 29 January 2020 8:25 AM
To: Samples Sydney
Cc: Loren Schiavon; Helen Simpson
Subject: COC AECOM - Project 60623599_1.1
Attachments: 60623599_1.1_CoC1.pdf

COC for samples from AECOM delivered by John yesterday afternoon.

Best regards,

Brenda Hong

Client Services Manager, Environmental NSW

ALS 1164

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brenda.hong@alsglobal.com
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Smithfield NSW 2164 AUSTRALIA

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www.alsglobal.com

From: Latham, Alex <Alex.Latham@aecom.com>
Sent: Wednesday, 29 January 2020 8:13 AM
To: Brenda Hong <Brenda.Hong@alsglobal.com>; Wathen, Kurtis <Kurtis.Wathen@aecom.com>
Cc: Panozzo, Rebekah <Rebekah.Panozzo@aecom.com>
Subject: RE: [EXTERNAL] - Project 60623599_1.1

Hi Brenda
CoC for samples picked up yesterday. Any Qs, pls call.
Regards,

Alex Latham
Associate Director
D +61 2 8934 0451 M +61 400 973 821
Alex.Latham@aecom.com

AECOM
Level 21, 420 George Street, Sydney, NSW 2000
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www.aecom.com

From: Brenda Hong <Brenda.Hong@alsglobal.com>
Sent: Tuesday, 28 January 2020 12:00 PM
To: Wathen, Kurtis <Kurtis.Wathen@aecom.com>
Cc: Panozzo, Rebekah <Rebekah.Panozzo@aecom.com>; Latham, Alex <Alex.Latham@aecom.com>
Subject: RE: [EXTERNAL] - Project 60623599_1.1

Great, thanks Kurtis!

Best regards,

Brenda Hong
Client Services Manager, Environmental NSW

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F +61 2 8784 8500 M +61 436 915 237
brenda.hong@alsglobal.com
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Smithfield NSW 2164 AUSTRALIA

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EnviroMail™ 128 – Revised PFAS Bottle Requirements

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1166

From: Wathen, Kurtis <Kurtis.Wathen@aecom.com>
Sent: Tuesday, 28 January 2020 11:06 AM
To: Brenda Hong <Brenda.Hong@alsglobal.com>
Cc: Panozzo, Rebekah <Rebekah.Panozzo@aecom.com>; Latham, Alex <Alex.Latham@aecom.com>
Subject: Re: [EXTERNAL] - Project 60623599_1.1

Hi Brenda,

3 pm works, thanks for that.

Kurtis Wathen
Environmental Engineer
+61 447 224 684

From: Brenda Hong <Brenda.Hong@alsglobal.com>
Sent: Tuesday, January 28, 2020 10:25:29 AM

To: Latham, Alex <Alex.Latham@aecom.com>
Cc: Wathen, Kurtis <Kurtis.Wathen@aecom.com>; Panozzo, Rebekah <Rebekah.Panozzo@aecom.com>
Subject: RE: [EXTERNAL] - Project 60623599_1.1

No worries, just spoke to the driver and he said he can do 3pm each day, hopefully that works?

Best regards,

Brenda Hong

Client Services Manager, Environmental NSW

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F +61 2 8784 8500 **M** +61 436 915 237
brenda.hong@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

From: Latham, Alex <Alex.Latham@aecom.com>
Sent: Tuesday, 28 January 2020 10:24 AM
To: Brenda Hong <Brenda.Hong@alsglobal.com>
Cc: Wathen, Kurtis <Kurtis.Wathen@aecom.com>; Panozzo, Rebekah <Rebekah.Panozzo@aecom.com>
Subject: RE: [EXTERNAL] - Project 60623599_1.1

Hey Bren
Hopefully the team will get back to you to advise. Cheers.

Alex Latham
Associate Director
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Alex.Latham@aecom.com

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www.aecom.com

From: Brenda Hong <Brenda.Hong@alsglobal.com>
Sent: Tuesday, 28 January 2020 10:21 AM
To: Latham, Alex <Alex.Latham@aecom.com>
Cc: Wathen, Kurtis <Kurtis.Wathen@aecom.com>; Panozzo, Rebekah <Rebekah.Panozzo@aecom.com>
Subject: RE: [EXTERNAL] - Project 60623599_1.1

1168

Hey AL, happy 2020! Sorry I was away for a few days... I will arrange for a dedicated driver to pick up samples from the Alexandria site address for each day. What time is suitable for your team?

Best regards,

Brenda Hong
Client Services Manager, Environmental NSW

T +61 2 8784 8555 D +61 2 8784 8515
F +61 2 8784 8500 M +61 436 915 237
brenda.hong@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

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EnviroMail™ 127 – Bacterial Diversity Profiling in NGS
EnviroMail™ 128 – Revised PFAS Bottle Requirements

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From: Latham, Alex <Alex.Latham@aecom.com>
Sent: Friday, 24 January 2020 1:22 PM
To: Brenda Hong <Brenda.Hong@alsglobal.com>
Cc: Wathen, Kurtis <Kurtis.Wathen@aecom.com>; Panozzo, Rebekah <Rebekah.Panozzo@aecom.com>
Subject: [EXTERNAL] - Project 60623599_1.1

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

TL69

Hi Brenda,
Just wanted to let you know we are commencing a drilling program on Tuesday (for about 5 days) and will prob' need ALS to come pick up samples at the end of each day.
1-3 Burrows Rd Alexandria.
Speak soon.
Cheers,

Alex Latham
Associate Director
D +61 2 8934 0451 M +61 400 973 821
Alex.Latham@aecom.com

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CHAIN OF CUSTODY

AECOM Australia Pty Ltd

Sydney (420 George St)
T: 02 8934 0451
M: 0400 973 821
AECOM Project Manager: Alex Latham
AECOM Project Manager Email: **Alex.Latham@aecom.com**
Sampled By: Kurtis Wathen / Rebekah Panozzo
AECOM Project No: **60623599_1.1**

Laboratory Details

Lab Name: **ALS**
Lab Address: 277 Woodpark Rd, Smithfield
Contact Name: Brenda Hong
Lab. Ref:
Tel: 8784 8515
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: **EN/004/16**
Project Name: Burrows IE
PO No. refer Project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis & XLS format also required — Yes

1. Urgent TAT required? (please circle: 24hr 48hr ___5__days)
2. Fast TAT Guarantee Required?
3. Is any sediment layer present in waters to be excluded from extractions?
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?
5. Special storage requirements? (details: _____)

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	other	Preservation: filt'ed	acid	ice	other	Container (No. & type)
	BH106_0.2-0.3	28/11/20	Y					Y		Jar/Bag 2
	QC100									Jar 1
1170	BH106_0.4-0.5									Jar/Bag 2
	BH106_0.8_0.9									Jar/Bag 2
	BH106_1.7-1.8									Jar/Bag 2
	BH106_2.7_2.8									Jar 1
	BH106_4.0_4.1									Jar/Bag
	BH106_6.0_6.1									Jar/Bag
	BH108_0.15-0.25									
	BH108_0.35-0.45									
	BH108_0.5_0.6									
	BH108_0.7_0.8									
	BH108_0.85-0.9									
	BH108_1.3_1.4									

Analysis Request

TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200N)	TRH > C10-C40 (EP071)	send requested soil QC samples to Envirolab with crushed ice please

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments:

Lab Report No.

Esky ID

Relinquished by:	Signed:	Date:	
Recieved by: JUSTIN	Signed:	Date: 28/11/20 5pm	
Relinquished by:	Signed:	Date:	
Recieved by:	Signed:	Date:	

CHAIN QF CUSTODY

AECOM Australia Pty Ltd		Laboratory Details	
Sydney (420 George St)	T: 02 8934 0451	Lab Name: **ALS**	Tel: 8784 8515
	M: 0400 973 821	Lab Address: 277 Woodpark Rd, Smithfield	Fax:
AECOM Project Manager: Alex Latham		Contact Name: Brenda Hong	Preliminary Report by:
AECOM Project Manager Email: **Alex.Latham@aecom.com**		Lab. Ref:	Final Report by:
			Lab Quote No: **EN/004/16**
Sampled By: Kurtis Wathen / Rebekah Panozzo	AECOM Project No: **60623599_1.1**	Project Name: Burrows IE	PO No. refer Project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis & XLS format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr __5__days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	other	Preservation: filt'ed	acid	ice	other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200N)	TRH > C10-C40 (EP071)	send requested soil QC samples to Envirolab with crushed ice please
	~~BH108~~ QC101	28/11/20	X					X		1 Jar							
	BH108_2.3-2.4									1 Jar 1 Bag							
11171	BH108_2.5-2.6																
	BH108_2.8-2.9																
	BH108_4.1-4.2																
	BH108_4.3-4.4									1 Ja							
	BH108_4.9-5.0									1 Jar							

* Metals Required:	As, Cd, Cr, Cu, Hg, Ni, Pb, Zn	Comments:	Lab Report No.	Esky ID

Relinquished by:		Signed:	Date:	Relinquished by:	Signed: Date:
Recieved by: JUSTIN		Signed:	Date: 28/11/20 5pm	Recieved by:	Signed: Date:

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2003147**	Page	: 1 of 17
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: PO BOX Q410 QVB POST OFFICE SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1	Date Samples Received	: 30-Jan-2020 15:00
Order number	: 60623599_1.1	Date Analysis Commenced	: 01-Feb-2020
C-O-C number	: ----	Issue Date	: 07-Feb-2020 16:25
Sampler	: Kurtis Wathen, REBEKAH PANOZZO		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 38		
No. of samples analysed	: 13		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

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

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

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

Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

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General Comments

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

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

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

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

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

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

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP068: Positive results have been confirmed by re-extraction and re-analysis.
- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
  Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
  The Asbestos (Fines and Fibrous) weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
  Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
  All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH116_0.3-0.4	BH116_0.6-0.65	BH117_0.3-0.4	BH117_1.3-1.4	BH117_2.2-2.3
				30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00
				ES2003147-001	ES2003147-002	ES2003147-005	ES2003147-007	ES2003147-008
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	11.6	12.8	9.2	31.0	24.9
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	No	No*	----
Asbestos Type	1332-21-4	-	--	-	-	-	Ch	----
Asbestos (Trace)	1332-21-4	5	Fibres	No	No	No	No	----
Sample weight (dry)	----	0.01	g	442	484	518	483	----
Synthetic Mineral Fibre	----	0.1	g/kg	No	No	No	No	----
Organic Fibre	----	0.1	g/kg	No	No	No	No	----
APPROVED IDENTIFIER:	----	-	--	A. SMYLIE	A. SMYLIE	A. SMYLIE	A. SMYLIE	----
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	<0.0004	<0.0004	<0.0004	0.0024	----
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	<0.001	<0.001	<0.001	<0.001	----
ø Asbestos Containing Material	1332-21-4	0.1	g	<0.1	<0.1	<0.1	<0.1	----
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	<0.01	<0.01	<0.01	----
ø Weight Used for % Calculation	----	0.0001	kg	0.442	0.484	0.518	0.483	----
ø Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	<0.0004	<0.0004	<0.0004	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	23	32	<5	27	52
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	2	7
Chromium	7440-47-3	2	mg/kg	11	26	6	51	90
Copper	7440-50-8	5	mg/kg	83	384	6	964	1250
Lead	7439-92-1	5	mg/kg	192	1280	30	2260	2240
Nickel	7440-02-0	2	mg/kg	20	28	8	55	64
Zinc	7440-66-6	5	mg/kg	217	915	21	1430	3720
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	0.6	<0.1	2.0	1.0
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH116_0.3-0.4	BH116_0.6-0.65	BH117_0.3-0.4	BH117_1.3-1.4	BH117_2.2-2.3
				30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00
				ES2003147-001	ES2003147-002	ES2003147-005	ES2003147-007	ES2003147-008
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
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	----	----	----	----
^ Total Chlordane (sum)	----	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	----	----	----	----
Endosulfan (sum)	115-29-7	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	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg	<0.05	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH116_0.3-0.4	BH116_0.6-0.65	BH117_0.3-0.4	BH117_1.3-1.4	BH117_2.2-2.3
				30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00
				ES2003147-001	ES2003147-002	ES2003147-005	ES2003147-007	ES2003147-008
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
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**	**0.7**
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	**4.0**	**4.9**
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	**1.3**	**2.1**
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	**0.7**	<0.5	**9.5**	**19.0**
Pyrene	129-00-0	0.5	mg/kg	<0.5	**0.7**	<0.5	**9.5**	**20.6**
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	**4.6**	**7.2**
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	**4.9**	**6.7**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	**0.7**	<0.5	**8.2**	**11.2**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	**2.5**	**3.4**
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	**0.6**	<0.5	**6.6**	**8.7**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	**4.2**	**4.5**
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	**0.9**	**1.1**
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	**0.5**	<0.5	**5.6**	**5.4**
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	**3.2**	<0.5	**62.3**	**95.5**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	**0.7**	<0.5	**9.6**	**12.6**
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**1.0**	**0.6**	**9.6**	**12.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.3**	**1.2**	**9.6**	**12.6**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	----	**900**
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	----	**550**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH116_0.3-0.4	BH116_0.6-0.65	BH117_0.3-0.4	BH117_1.3-1.4	BH117_2.2-2.3
				30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00
				ES2003147-001	ES2003147-002	ES2003147-005	ES2003147-007	ES2003147-008
				Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued								
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	**1450**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	----	----	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	**180**	----	----	**1310**
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	----	**260**
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	**180**	----	----	**1570**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	----	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	----	----	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	**94.9**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**104**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**98.3**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**83.4**	**92.9**	**93.8**	**93.0**	**95.6**
2-Chlorophenol-D4	93951-73-6	0.5	%	**88.1**	**94.0**	**94.3**	**94.1**	**99.1**
2.4.6-Tribromophenol	118-79-6	0.5	%	**64.0**	**75.8**	**70.1**	**88.5**	**95.1**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**100.0**	**106**	**107**	**103**	**108**
Anthracene-d10	1719-06-8	0.5	%	**92.1**	**110**	**114**	**102**	**105**
4-Terphenyl-d14	1718-51-0	0.5	%	**96.6**	**103**	**107**	**98.0**	**108**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH116_0.3-0.4	BH116_0.6-0.65	BH117_0.3-0.4	BH117_1.3-1.4	BH117_2.2-2.3
				30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00
				ES2003147-001	ES2003147-002	ES2003147-005	ES2003147-007	ES2003147-008
				Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**104**	**107**	**----**	**----**	**99.3**
Toluene-D8	2037-26-5	0.2	%	**100**	**99.4**	**----**	**----**	**95.3**
4-Bromofluorobenzene	460-00-4	0.2	%	**95.2**	**94.6**	**----**	**----**	**91.2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH115_0.6-0.7	BH115_2.5-2.6	BH111_0.3-0.4	BH111_0.65-0.75	BH110_0.35-0.36
				29-Jan-2020 00:00	29-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	28-Jan-2020 00:00
				ES2003147-014	ES2003147-016	ES2003147-023	ES2003147-024	ES2003147-028
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	25.1	20.6	19.4	15.0	27.1
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	Yes	----	No	No	Yes
Asbestos Type	1332-21-4	-	--	Ch + Am	----	-	-	Ch + Am + Cr
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	No	No	No
Sample weight (dry)	----	0.01	g	464	----	344	384	244
Synthetic Mineral Fibre	----	0.1	g/kg	No	----	No	No	No
Organic Fibre	----	0.1	g/kg	No	----	No	No	No
APPROVED IDENTIFIER:	----	-	--	A. SMYLIE	----	A. SMYLIE	A. SMYLIE	A. SMYLIE
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	0.0495	----	<0.0004	<0.0004	0.0488
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	0.011	----	<0.001	<0.001	0.020
ø Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	<0.1	8.2
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	----	<0.01	<0.01	0.50
ø Weight Used for % Calculation	----	0.0001	kg	0.464	----	0.344	0.384	0.244
ø Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	----	<0.0004	<0.0004	<0.0004
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	45	117	41	102	18
Cadmium	7440-43-9	1	mg/kg	1	13	7	12	5
Chromium	7440-47-3	2	mg/kg	90	38	210	120	30
Copper	7440-50-8	5	mg/kg	407	872	3350	4920	395
Lead	7439-92-1	5	mg/kg	522	6390	4530	8960	2520
Nickel	7440-02-0	2	mg/kg	160	145	337	179	71
Zinc	7440-66-6	5	mg/kg	776	2930	3400	14000	4030
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.5	<0.1	<0.1	<0.1	0.4
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	<0.1
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

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH115_0.6-0.7	BH115_2.5-2.6	BH111_0.3-0.4	BH111_0.65-0.75	BH110_0.35-0.36
				29-Jan-2020 00:00	29-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	28-Jan-2020 00:00
				ES2003147-014	ES2003147-016	ES2003147-023	ES2003147-024	ES2003147-028
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
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	----	----	----	**0.08**
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	<0.05
^ Total Chlordane (sum)	----	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	----	----	----	**1.24**
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
Endosulfan (sum)	115-29-7	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
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	----	**1.32**
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg	<0.05	----	----	----	<0.05
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

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH115_0.6-0.7	BH115_2.5-2.6	BH111_0.3-0.4	BH111_0.65-0.75	BH110_0.35-0.36
				29-Jan-2020 00:00	29-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	28-Jan-2020 00:00
				ES2003147-014	ES2003147-016	ES2003147-023	ES2003147-024	ES2003147-028
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
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	<0.5	<0.5	<0.5	**0.9**
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	**0.5**	<0.5	<0.5	<0.5	**3.6**
Pyrene	129-00-0	0.5	mg/kg	**0.5**	<0.5	<0.5	<0.5	**4.1**
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**2.2**
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**2.0**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**2.3**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**0.8**
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**1.8**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**0.8**
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	**0.7**
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	**1.0**	<0.5	<0.5	<0.5	**19.2**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**2.4**
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	**0.6**	**2.7**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	**1.2**	**2.9**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	**430**
C29 - C36 Fraction	----	100	mg/kg	**110**	<100	<100	----	**480**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH115_0.6-0.7	BH115_2.5-2.6	BH111_0.3-0.4	BH111_0.65-0.75	BH110_0.35-0.36
				29-Jan-2020 00:00	29-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	28-Jan-2020 00:00
				ES2003147-014	ES2003147-016	ES2003147-023	ES2003147-024	ES2003147-028
				Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued								
^ C10 - C36 Fraction (sum)	----	50	mg/kg	110	<50	<50	----	910
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg	170	<100	<100	----	740
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	340
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	170	<50	<50	----	1080
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	112	----	----	----	88.7
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	137	----	----	----	90.1
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	68.9	----	----	----	101
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	81.2	94.4	92.8	91.3	83.0
2-Chlorophenol-D4	93951-73-6	0.5	%	86.2	97.7	92.0	87.8	81.9
2.4.6-Tribromophenol	118-79-6	0.5	%	81.5	79.5	46.9	43.8	92.0
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	98.2	107	109	109	98.0
Anthracene-d10	1719-06-8	0.5	%	88.9	114	117	117	84.6
4-Terphenyl-d14	1718-51-0	0.5	%	94.2	105	109	109	89.0

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH115_0.6-0.7	BH115_2.5-2.6	BH111_0.3-0.4	BH111_0.65-0.75	BH110_0.35-0.36
				29-Jan-2020 00:00	29-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	28-Jan-2020 00:00
				ES2003147-014	ES2003147-016	ES2003147-023	ES2003147-024	ES2003147-028
				Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**95.8**	**100**	**103**	**----**	**93.2**
Toluene-D8	2037-26-5	0.2	%	**86.4**	**91.1**	**95.0**	**----**	**82.2**
4-Bromofluorobenzene	460-00-4	0.2	%	**83.7**	**85.8**	**92.2**	**----**	**73.5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH110_0.4-0.6	BH110_1.2-1.3	----	----	----
				28-Jan-2020 00:00	28-Jan-2020 00:00	----	----	----
				ES2003147-029	ES2003147-031	--------	--------	--------
				Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**15.8**	**17.3**	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**Yes**	----	----	----	----
Asbestos Type	1332-21-4	-	--	**Ch + Am + Cr**	----	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres	**Yes**	----	----	----	----
Sample weight (dry)	----	0.01	g	**440**	----	----	----	----
Synthetic Mineral Fibre	----	0.1	g/kg	**No**	----	----	----	----
Organic Fibre	----	0.1	g/kg	**No**	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	**A. SMYLIE**	----	----	----	----
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	**0.166**	----	----	----	----
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	**0.038**	----	----	----	----
ø Asbestos Containing Material	1332-21-4	0.1	g	**0.8**	----	----	----	----
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	**0.03**	----	----	----	----
ø Weight Used for % Calculation	----	0.0001	kg	**0.440**	----	----	----	----
ø Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**48**	**32**	----	----	----
Cadmium	7440-43-9	1	mg/kg	**6**	**2**	----	----	----
Chromium	7440-47-3	2	mg/kg	**60**	**20**	----	----	----
Copper	7440-50-8	5	mg/kg	**1260**	**336**	----	----	----
Lead	7439-92-1	5	mg/kg	**3960**	**1350**	----	----	----
Nickel	7440-02-0	2	mg/kg	**91**	**16**	----	----	----
Zinc	7440-66-6	5	mg/kg	**2120**	**828**	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	**1.4**	**0.2**	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	**1.5**	**1.1**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH110_0.4-0.6	BH110_1.2-1.3	----	----	----
				28-Jan-2020 00:00	28-Jan-2020 00:00	----	----	----
				ES2003147-029	ES2003147-031	--------	--------	--------
				Result	Result	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	**1.7**	**3.8**	----	----	----
Pyrene	129-00-0	0.5	mg/kg	**1.4**	**5.7**	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	**0.5**	**2.5**	----	----	----
Chrysene	218-01-9	0.5	mg/kg	**0.5**	**2.9**	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	**0.7**	**3.1**	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	**0.9**	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	**2.8**	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	**1.2**	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	**1.7**	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	**6.3**	**25.7**	----	----	----
Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	**3.6**	----	----	----
Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.7**	**3.9**	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**4.1**	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**96.9**	**91.0**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	**97.1**	**96.0**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%	**72.2**	**93.4**	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**114**	**107**	----	----	----
Anthracene-d10	1719-06-8	0.5	%	**105**	**109**	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	**104**	**102**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				QC302	----	----	----	----
				30-Jan-2020 00:00	----	----	----	----
				ES2003147-012	--------	--------	--------	--------
				Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L	<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**104**	----	----	----	----
Toluene-D8	2037-26-5	2	%	**109**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	**106**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

[illegible]	[illegible] R [illegible]	[illegible]
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH116_0.3-0.4 - 30-Jan-2020 00:00	Mid brown soil.
EA200: Description	BH116_0.6-0.65 - 30-Jan-2020 00:00	Mid brown soil.
EA200: Description	BH117_0.3-0.4 - 30-Jan-2020 00:00	Mid brown soil.
EA200: Description	BH117_1.3-1.4 - 30-Jan-2020 00:00	Mid brown soil containing one asbestos fibre bundle approximately 5x1x0.5mm.
EA200: Description	BH115_0.6-0.7 - 29-Jan-2020 00:00	Mid brown soil containing one piece of asbestos rope-like material approximately 15x2x2mm and one piece of asbestos cement sheeting approximately 5x5x2mm with loose asbestos fibre bundles.
EA200: Description	BH111_0.3-0.4 - 30-Jan-2020 00:00	Mid brown soil.
EA200: Description	BH111_0.65-0.75 - 30-Jan-2020 00:00	Mid brown soil.
EA200: Description	BH110_0.35-0.36 - 28-Jan-2020 00:00	Mid brown soil containing two pieces of asbestos cement sheeting approximately 40x30x5mm, one smaller fragment of asbestos cement debris approximately 10x5x2mm and plenty of loose asbestos fibre bundles.
EA200: Description	BH110_0.4-0.6 - 28-Jan-2020 00:00	Mid brown soil containing two pieces of asbestos cement sheeting approximately 20x15x2mm and plenty of loose asbestos fibre bundles throughout. Trace asbestos detected.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
		Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

Sub-Matrix: WATER		Recovery Limits (%)	
		Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: **ES2003147**	Page	: 1 of 14
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: PO BOX Q410 QVB POST OFFICE SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1	Date Samples Received	: 30-Jan-2020
Order number	: 60623599_1.1	Date Analysis Commenced	: 01-Feb-2020
C-O-C number	: ----	Issue Date	: 07-Feb-2020
Sampler	: Kurtis Wathen, REBEKAH PANOZZO		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 38		
No. of samples analysed	: 13		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

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

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

Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2839957)									
EM2001381-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	11	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	3	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	79	82	3.98	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	29	27	9.48	No Limit
ES2003147-016	BH115_2.5-2.6	EG005T: Cadmium	7440-43-9	1	mg/kg	13	11	15.4	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	38	38	0.00	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	145	155	6.48	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	117	99	16.8	0% - 20%
		EG005T: Copper	7440-50-8	5	mg/kg	872	1040	17.9	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	6390	5870	8.46	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	2930	3080	4.99	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2839968)									
ES2002923-001	Anonymous	EA055: Moisture Content	---	0.1	%	9.9	9.0	8.93	No Limit
ES2003147-024	BH111_0.65-0.75	EA055: Moisture Content	---	0.1	%	15.0	14.9	0.754	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2839956)									
EM2001381-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES2003147-016	BH115_2.5-2.6	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2836713)									
ES2002677-001	Anonymous	EP066: Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES2003046-001	Anonymous	EP066: Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2836716)									

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2836716) - continued									
ES2002677-001	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES2003046-001	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2836716) - continued									
ES2003046-001	Anonymous	EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2836716)									
ES2002677-001	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES2003046-001	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2836716) - continued									
ES2003046-001	Anonymous	EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2836715)									
ES2002677-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	---	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	---	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES2003046-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2836715) - continued									
ES2003046-001	Anonymous	EP075(SIM): Sum of polycyclic aromatic hydrocarbons	---	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	---	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2836719)									
ES2003147-002	BH116_0.6-0.65	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	0.7	1.0	30.6	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	0.7	1.0	25.9	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	0.7	0.6	17.1	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	0.6	<0.5	22.2	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	---	0.5	mg/kg	3.2	2.6	20.7	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	---	0.5	mg/kg	0.7	<0.5	29.8	No Limit
ES2003046-008	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2836719) - continued									
ES2003046-008	Anonymous	EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2836694)									
ES2003147-001	BH116_0.3-0.4	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EW2000476-004	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2836714)									
ES2002677-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES2003046-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2836718)									
ES2003147-002	BH116_0.6-0.65	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES2003046-008	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2836694)									
ES2003147-001	BH116_0.3-0.4	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EW2000476-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2836714)									
ES2002677-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES2003046-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2836718)									
ES2003147-002	BH116_0.6-0.65	EP071: >C16 - C34 Fraction	----	100	mg/kg	180	130	28.5	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES2003046-008	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 2836694)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 2836694) - continued									
ES2003147-001	BH116_0.3-0.4	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EW2000476-004	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2843462)									
ES2003147-012	QC302	EP080: C6 - C9 Fraction	---	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2843462)									
ES2003147-012	QC302	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2843462)									
ES2003147-012	QC302	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

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

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

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2839957)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	105	86.0	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	96.2	83.0	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	102	76.0	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	94.0	86.0	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	95.4	80.0	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	90.6	87.0	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	81.4	80.0	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2839956)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	84.9	70.0	105
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2836713)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	105	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 2836716)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	102	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	103	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	103	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	104	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	104	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	108	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	98.3	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	105	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	108	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	106	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	98.1	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	106	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.2	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.4	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	81.0	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	107	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	101	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	105	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	100	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2836716)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2836716) - continued								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	83.1	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	105	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	76.7	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	89.7	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	97.4	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	90.4	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	90.4	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	92.5	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.8	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	97.6	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	89.9	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	83.8	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	87.0	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.1	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	80.0	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	100	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	93.5	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	101	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	91.4	41.0	123
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2836715)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	91.2	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	94.9	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	96.1	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	97.1	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	97.5	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	93.1	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	95.3	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	98.0	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	93.1	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	97.6	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	95.9	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	89.1	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	92.8	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	95.2	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	94.0	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	92.2	63.0	121
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2836719)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	114	77.0	125

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2836719) - continued								
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	114	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	112	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	114	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	119	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	121	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	120	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	125	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	109	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	113	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	111	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	110	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	113	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	107	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	103	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	103	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2836694)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	88.5	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2836714)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	105	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	107	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	106	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2836718)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	108	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	117	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	115	71.0	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2836694)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	90.8	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2836714)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	103	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	103	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	111	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2836718)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	112	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	113	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	118	63.0	131
EP080: BTEXN (QCLot: 2836694)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	102	62.0	116

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 2836694) - continued								
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	94.5	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	94.2	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	96.2	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	97.2	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	97.6	63.0	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2843462)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	94.7	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2843462)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	95.5	75.0	127
EP080: BTEXN (QCLot: 2843462)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	102	70.0	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	97.3	69.0	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	102	70.0	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	96.4	69.0	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	72.0	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	105	70.0	120

EP080

Matrix Spike (MS) Report

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

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2839957)							
EM2001381-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	89.0	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	91.5	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	88.5	70.0	130
		EG005T: Copper	7440-50-8	250 mg/kg	78.3	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	85.2	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	77.5	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	72.4	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2839956)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2839956) - continued							
EM2001381-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	80.7	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2836713)							
ES2002677-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	92.0	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2836716)							
ES2002677-001	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	97.3	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	102	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	103	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	80.4	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	93.1	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	87.6	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2836716)							
ES2002677-001	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	93.2	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	80.4	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	72.7	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	74.6	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	72.4	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2836715)							
ES2002677-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	97.2	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	93.2	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2836719)							
ES2003046-008	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	114	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	122	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2836694)							
ES2003147-001	BH116_0.3-0.4	EP080: C6 - C9 Fraction	----	32.5 mg/kg	109	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2836714)							
ES2002677-001	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	96.1	73.0	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	106	53.0	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	126	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2836718)							
ES2003046-008	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	94.8	73.0	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	111	53.0	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	114	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2836694)							
ES2003147-001	BH116_0.3-0.4	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	108	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2836714)							
ES2002677-001	Anonymous						

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Recovery Limits (%) Low	Matrix Spike (MS) Report: Recovery Limits (%) High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2836714) - continued							
ES2002677-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	104	73.0	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	118	53.0	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	118	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2836718)							
ES2003046-008	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	102	73.0	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	114	53.0	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	106	52.0	132
EP080: BTEXN (QCLot: 2836694)							
ES2003147-001	BH116_0.3-0.4	EP080: Benzene	71-43-2	2.5 mg/kg	117	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	104	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	104	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	104	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	106	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	91.1	70.0	130

1202

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Recovery Limits (%) Low	Matrix Spike (MS) Report: Recovery Limits (%) High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2843462)							
ES2003147-012	QC302	EP080: C6 - C9 Fraction	----	325 µg/L	92.5	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2843462)							
ES2003147-012	QC302	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	93.5	70.0	130
EP080: BTEXN (QCLot: 2843462)							
ES2003147-012	QC302	EP080: Benzene	71-43-2	25 µg/L	88.7	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	93.0	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	103	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	101	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	102	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	107	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2003147**	Page	: 1 of 9
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1	Date Samples Received	: 30-Jan-2020
Site	: ----	Issue Date	: 07-Feb-2020
Sampler	: Kurtis Wathen, REBEKAH PANOZZO	No. of samples received	: 38
Order number	: 60623599_1.1	No. of samples analysed	: 13

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

1203

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

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

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

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

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

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

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
BH110_0.35-0.36,	BH110_0.4-0.6,	**28-Jan-2020**	**----**	----	----	**04-Feb-2020**	11-Feb-2020	✓
BH110_1.2-1.3								
Soil Glass Jar - Unpreserved (EA055)								
BH115_0.6-0.7,	BH115_2.5-2.6	**29-Jan-2020**	**----**	----	----	**04-Feb-2020**	12-Feb-2020	✓
Soil Glass Jar - Unpreserved (EA055)								
BH116_0.3-0.4,	BH116_0.6-0.65,	**30-Jan-2020**	**----**	----	----	**04-Feb-2020**	13-Feb-2020	✓
BH117_0.3-0.4,	BH117_1.3-1.4,							
BH117_2.2-2.3,	BH111_0.3-0.4,							
BH111_0.65-0.75								
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)								
BH110_0.35-0.36,	BH110_0.4-0.6	**28-Jan-2020**	**----**	----	----	**04-Feb-2020**	26-Jul-2020	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)								
BH115_0.6-0.7		**29-Jan-2020**	**----**	----	----	**04-Feb-2020**	27-Jul-2020	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)								
BH116_0.3-0.4,	BH116_0.6-0.65,	**30-Jan-2020**	**----**	----	----	**04-Feb-2020**	28-Jul-2020	✓
BH117_0.3-0.4,	BH117_1.3-1.4,							
BH111_0.3-0.4,	BH111_0.65-0.75							
EA200N: Asbestos Quantification (non-NATA)								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)								
BH110_0.35-0.36,	BH110_0.4-0.6	**28-Jan-2020**	**----**	----	----	**04-Feb-2020**	26-Jul-2020	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)								
BH115_0.6-0.7		**29-Jan-2020**	**----**	----	----	**04-Feb-2020**	27-Jul-2020	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)								
BH116_0.3-0.4,	BH116_0.6-0.65,	**30-Jan-2020**	**----**	----	----	**04-Feb-2020**	28-Jul-2020	✓
BH117_0.3-0.4,	BH117_1.3-1.4,							
BH111_0.3-0.4,	BH111_0.65-0.75							

1204

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) BH110_0.35-0.36, BH110_0.4-0.6, BH110_1.2-1.3	**28-Jan-2020**	**04-Feb-2020**	26-Jul-2020	✓	**04-Feb-2020**	26-Jul-2020	✓
Soil Glass Jar - Unpreserved (EG005T) BH115_0.6-0.7, BH115_2.5-2.6	**29-Jan-2020**	**04-Feb-2020**	27-Jul-2020	✓	**04-Feb-2020**	27-Jul-2020	✓
Soil Glass Jar - Unpreserved (EG005T) BH116_0.3-0.4, BH116_0.6-0.65, BH117_0.3-0.4, BH117_1.3-1.4, BH117_2.2-2.3, BH111_0.3-0.4, BH111_0.65-0.75	**30-Jan-2020**	**04-Feb-2020**	28-Jul-2020	✓	**04-Feb-2020**	28-Jul-2020	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) BH110_0.35-0.36, BH110_0.4-0.6, BH110_1.2-1.3	**28-Jan-2020**	**04-Feb-2020**	25-Feb-2020	✓	**06-Feb-2020**	25-Feb-2020	✓
Soil Glass Jar - Unpreserved (EG035T) BH115_0.6-0.7, BH115_2.5-2.6	**29-Jan-2020**	**04-Feb-2020**	26-Feb-2020	✓	**06-Feb-2020**	26-Feb-2020	✓
Soil Glass Jar - Unpreserved (EG035T) BH116_0.3-0.4, BH116_0.6-0.65, BH117_0.3-0.4, BH117_1.3-1.4, BH117_2.2-2.3, BH111_0.3-0.4, BH111_0.65-0.75	**30-Jan-2020**	**04-Feb-2020**	27-Feb-2020	✓	**06-Feb-2020**	27-Feb-2020	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) BH110_0.35-0.36	**28-Jan-2020**	**01-Feb-2020**	11-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP066) BH115_0.6-0.7	**29-Jan-2020**	**01-Feb-2020**	12-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP066) BH116_0.3-0.4	**30-Jan-2020**	**01-Feb-2020**	13-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068) BH110_0.35-0.36	**28-Jan-2020**	**01-Feb-2020**	11-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP068) BH115_0.6-0.7	**29-Jan-2020**	**01-Feb-2020**	12-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP068) BH116_0.3-0.4	**30-Jan-2020**	**01-Feb-2020**	13-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068) BH110_0.35-0.36	**28-Jan-2020**	**01-Feb-2020**	11-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP068) BH115_0.6-0.7	**29-Jan-2020**	**01-Feb-2020**	12-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP068) BH116_0.3-0.4	**30-Jan-2020**	**01-Feb-2020**	13-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH110_0.4-0.6,	BH110_1.2-1.3	**28-Jan-2020**	**01-Feb-2020**	11-Feb-2020	✓	**03-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH110_0.35-0.36		**28-Jan-2020**	**01-Feb-2020**	11-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH115_2.5-2.6		**29-Jan-2020**	**01-Feb-2020**	12-Feb-2020	✓	**03-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH115_0.6-0.7		**29-Jan-2020**	**01-Feb-2020**	12-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH116_0.6-0.65,	BH117_0.3-0.4,	**30-Jan-2020**	**01-Feb-2020**	13-Feb-2020	✓	**03-Feb-2020**	12-Mar-2020	✓
BH117_1.3-1.4,	BH117_2.2-2.3,							
BH111_0.3-0.4,	BH111_0.65-0.75							
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH116_0.3-0.4		**30-Jan-2020**	**01-Feb-2020**	13-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP071)								
BH110_0.35-0.36		**28-Jan-2020**	**01-Feb-2020**	11-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080)								
BH110_0.35-0.36		**28-Jan-2020**	**01-Feb-2020**	11-Feb-2020	✓	**06-Feb-2020**	11-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP071)								
BH115_0.6-0.7,	BH115_2.5-2.6	**29-Jan-2020**	**01-Feb-2020**	12-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080)								
BH115_0.6-0.7,	BH115_2.5-2.6	**29-Jan-2020**	**01-Feb-2020**	12-Feb-2020	✓	**06-Feb-2020**	12-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP071)								
BH116_0.3-0.4,	BH116_0.6-0.65,	**30-Jan-2020**	**01-Feb-2020**	13-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
BH117_2.2-2.3,	BH111_0.3-0.4							
Soil Glass Jar - Unpreserved (EP080)								
BH116_0.3-0.4,	BH116_0.6-0.65,	**30-Jan-2020**	**01-Feb-2020**	13-Feb-2020	✓	**06-Feb-2020**	13-Feb-2020	✓
BH117_2.2-2.3,	BH111_0.3-0.4							
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP071)								
BH110_0.35-0.36		**28-Jan-2020**	**01-Feb-2020**	11-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080)								
BH110_0.35-0.36		**28-Jan-2020**	**01-Feb-2020**	11-Feb-2020	✓	**06-Feb-2020**	11-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP071)								
BH115_0.6-0.7,	BH115_2.5-2.6	**29-Jan-2020**	**01-Feb-2020**	12-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080)								
BH115_0.6-0.7,	BH115_2.5-2.6	**29-Jan-2020**	**01-Feb-2020**	12-Feb-2020	✓	**06-Feb-2020**	12-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP071)								
BH116_0.3-0.4,	BH116_0.6-0.65,	**30-Jan-2020**	**01-Feb-2020**	13-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
BH117_2.2-2.3,	BH111_0.3-0.4							
Soil Glass Jar - Unpreserved (EP080)								
BH116_0.3-0.4,	BH116_0.6-0.65,	**30-Jan-2020**	**01-Feb-2020**	13-Feb-2020	✓	**06-Feb-2020**	13-Feb-2020	✓
BH117_2.2-2.3,	BH111_0.3-0.4							

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) BH110_0.35-0.36		**28-Jan-2020**	**01-Feb-2020**	11-Feb-2020	✓	**06-Feb-2020**	11-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP080) BH115_0.6-0.7,	BH115_2.5-2.6	**29-Jan-2020**	**01-Feb-2020**	12-Feb-2020	✓	**06-Feb-2020**	12-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP080) BH116_0.3-0.4, BH117_2.2-2.3,	BH116_0.6-0.65, BH111_0.3-0.4	**30-Jan-2020**	**01-Feb-2020**	13-Feb-2020	✓	**06-Feb-2020**	13-Feb-2020	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080) QC302	**30-Jan-2020**	**05-Feb-2020**	13-Feb-2020	✓	**05-Feb-2020**	13-Feb-2020	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080) QC302	**30-Jan-2020**	**05-Feb-2020**	13-Feb-2020	✓	**05-Feb-2020**	13-Feb-2020	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) QC302	**30-Jan-2020**	**05-Feb-2020**	13-Feb-2020	✓	**05-Feb-2020**	13-Feb-2020	✓

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Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	4	34	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

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

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
TRH Volatiles/BTEX	EP080	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
TRH Volatiles/BTEX	EP080	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
TRH Volatiles/BTEX	EP080	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
TRH Volatiles/BTEX	EP080	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 6.1 and Table 1 (14 day holding time).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	* EA200N	SOIL	Asbestos Classification and Quantitation per NEPM 2013 with Confirmation of Identification by AS 4964 - 2004 Gravimetric determination of Asbestos Containing Material, Fibrous Asbestos, Asbestos Fines and sample weight and calculation of percentage concentrations per NEPM protocols. Asbestos (Fines and Fibrous FA+AF) is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2003147**

Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: PO BOX Q410 QVB POST OFFICE SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Brenda.Hong@ALSGlobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60623599_1.1	Page	: 1 of 3
Order number	: 60623599_1.1	Quote number	: EB2017AECOMAU0014 (EN/004/16)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Kurtis Wathen, REBEKAH PANOZZO		

Dates

Date Samples Received	: 30-Jan-2020 15:00	Issue Date	: 05-Feb-2020
Client Requested Due Date	: 06-Feb-2020	Scheduled Reporting Date	: **06-Feb-2020**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 13.1 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 38 / 13

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- This is an updated SRN to include TPH (C6-C9)/BTEXN analysis on sample QC302.
- **Samples 27-35 have been transferred from ES2002766, as per Alex Latham.**
- **Please note that sample QC107 contained two soil jars. Samples BH117_3.9-4.0 and BH111_4.3-4.4 did not contain an Asbestos bag. Two VOC vials were received for sample QC302 (30/1/20), however no VOC vial was received for sample QC302(29/01/2020) - both VOC vials had the sampling date of 30/01/20. Sample BH115_4.4-4.6 had the depth of 4.4-4.5 on the soil jar. Samples BH111_1.5-1.6 and BH110_6.1-6.2 did not received soil jars. Samples BH111_1.4-1.5, BH115_0.7-0.8 and QC301 were received extra.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

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

No sample container / preservation non-compliance exists.

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2003147-018 : [29-Jan-2020] : BH115_4.4-4.5 - BH115_4.4-4.5

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - EP075 SIM PAH only SIM - PAH only	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-13 OC/OP/PCB	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2003147-001	30-Jan-2020 00:00	BH116_0.3-0.4		☐	☐			☐	☐
ES2003147-002	30-Jan-2020 00:00	BH116_0.6-0.65		☐	☐				☐
ES2003147-003	30-Jan-2020 00:00	BH116_0.75-0.78	☐						
ES2003147-004	30-Jan-2020 00:00	QC107	☐						
ES2003147-005	30-Jan-2020 00:00	BH117_0.3-0.4		☐	☐	☐	☐		
ES2003147-006	30-Jan-2020 00:00	BH117_0.8-0.9	☐						
ES2003147-007	30-Jan-2020 00:00	BH117_1.3-1.4		☐	☐	☐	☐		
ES2003147-008	30-Jan-2020 00:00	BH117_2.2-2.3		☐					☐
ES2003147-009	30-Jan-2020 00:00	BH117_3.1-3.2	☐						
ES2003147-010	30-Jan-2020 00:00	BH117_3.9-4.0	☐						
ES2003147-011	30-Jan-2020 00:00	BH117_4.4-4.5	☐						
ES2003147-013	29-Jan-2020 00:00	BH115_0.1-0.2	☐						
ES2003147-014	29-Jan-2020 00:00	BH115_0.6-0.7		☐	☐			☐	☐
ES2003147-015	29-Jan-2020 00:00	BH115_1.0-1.1	☐						
ES2003147-016	29-Jan-2020 00:00	BH115_2.5-2.6		☐					☐
ES2003147-017	29-Jan-2020 00:00	BH115_3.8-3.9	☐						
ES2003147-018	29-Jan-2020 00:00	BH115_4.4-4.5 BH115...	☐						
ES2003147-019	30-Jan-2020 00:00	BH111_2.3-2.4	☐						
ES2003147-020	30-Jan-2020 00:00	BH111_3.2-3.3	☐						
ES2003147-021	30-Jan-2020 00:00	BH111_4.3-4.5	☐						
ES2003147-022	30-Jan-2020 00:00	BH111_0.15-0.20	☐						
ES2003147-023	30-Jan-2020 00:00	BH111_0.3-0.4		☐	☐				☐
ES2003147-024	30-Jan-2020 00:00	BH111_0.65-0.75		☐	☐	☐	☐		
ES2003147-025	30-Jan-2020 00:00	BH111_1.5-1.6	☐						
ES2003147-026	29-Jan-2020 00:00	BH113_1.0-1.1	☐						
ES2003147-027	28-Jan-2020 00:00	QC104	☐						
ES2003147-028	28-Jan-2020 00:00	BH110_0.35-0.36		☐	☐			☐	☐
ES2003147-029	28-Jan-2020 00:00	BH110_0.4-0.6		☐	☐	☐	☐		
ES2003147-030	28-Jan-2020 00:00	BH110_0.9-1.0	☐						
ES2003147-031	28-Jan-2020 00:00	BH110_1.2-1.3		☐		☐	☐		
ES2003147-032	28-Jan-2020 00:00	BH110_5-5.1	☐						
ES2003147-033	28-Jan-2020 00:00	BH110_6.1-6.2	☐						
ES2003147-034	28-Jan-2020 00:00	BH108_4.1-4.2	☐						

			(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - EP075 SIM PAH only SIM - PAH only	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-13 OC/OP/PCB	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2003147-035	30-Jan-2020 00:00	QC108	☐						
ES2003147-036	30-Jan-2020 00:00	BH111_1.4-1.5	☐						
ES2003147-037	29-Jan-2020 00:00	BH115_0.7-0.8	☐						

Matrix: **WATER**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	(On Hold) WATER No analysis requested	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2003147-012	30-Jan-2020 00:00	QC302		☐
ES2003147-038	29-Jan-2020 00:00	QC301	☐	

Proactive Holding Time Report

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

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

ALEX LATHAM

- *AU Certificate of Analysis - NATA (COA)	Email	alex.latham@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	alex.latham@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	alex.latham@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	alex.latham@aecom.com
- Chain of Custody (CoC) (COC)	Email	alex.latham@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	alex.latham@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	alex.latham@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	alex.latham@aecom.com
- EDI Format - XTab (XTAB)	Email	alex.latham@aecom.com
- Electronic SRN for EQuIS (ESRN_EQUIS)	Email	alex.latham@aecom.com

updated COC rec. 31/1/20 @ 3pm.

60623599 Burrows IE 1 of 3

Environmental Division Sydney
Work Order Reference
ES2003147

CHAIN OF CUSTODY

AECOM Australia Pty Ltd
Sydney (420 George St) T: 02 8934 0451
AECOM Project Manager: Alex Latham
AECOM Project Manager Email: Alex.Latham@aecom.com
Sampled By: Kurtis Wathen / Rebekah Panozzo AECOM Project No: 60623599_1.1

Laboratory Details Tel: ~~9910 6200~~
Lab Name: ~~Envirolab~~ ALS Fax:
Lab Address: ~~12 Ashley St, Chatswood~~ Chatfield Preliminary Rep
Contact Name: ~~B Springer~~ B Hong Final Report by:
Lab. Ref: Lab Quote No:
Project Name: Burrows IE PO No.

Telephone : + 61-2-8784 8555

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	3 days
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details:)	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	other	Preservation: filt'ed	acid	ice	other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200)		HOLD		TRH >C40-C40		Hold	Other
1	BH116_0.3-0.4	30/1/20	✓					✓		3 B	✓	✓	✓	✓	✓							
2	BH116_0.6-0.65		✓					✓		3 B	✓	✓	✓		✓							
3	BH116_0.75-0.79		✓					✓		3 B							✓					
4	QC107		✓					✓	2x jars	0 -							✓					
~~-~~	~~BH117_2.2-2.3~~																					
~~-~~	~~BH117_3.1-3.3~~																					
5	BH117_0.3-0.4		✓					✓		3 B		✓	✓		✓							
6	BH117_0.8-0.9		✓					✓		3 B							✓					
7	BH117_1.3-1.4		✓					✓		3 B		✓	✓		✓							
8	BH117_2.2-2.3		✓					✓		3 B	✓	✓	✓									
9	BH117_3.1-3.2		✓					✓		3 B							✓					
10	BH117_3.9-4.0		✓					✓	No bag	3 B							✓					
11	BH117_4.4-4.5		✓					✓		3 -							✓					
12	QC302			✓				✓	2x VOC vials	3 -									✓			

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments: 30/1/20

Relinquished by: R. Panozzo Signed: Date: ~~19/07/2019~~
Recieved by: Signed: Date:

Relinquished by: Signed: Date:
Recieved by: Stanley 10 Signed: Date: 30/01/20

Lab Report No. Esky ID

Subcon / Forward Dep / Split WO: Lab / Analysis: Newcastle / Auburn
Organised By / Date: Relinquished By / Date: Consign / Courier: WO No:

Attached By PO / Internal Sheet:

1215

Field_Worksheet_FORM025_Dec04

CHAIN OF CUSTODY

AECOM Australia Pty Ltd
Sydney (420 George St) T: 02 8934 0451
AECOM Project Manager: Alex Latham
AECOM Project Manager Email: Alex.Latham@aecom.com
Sampled By: Kurtis Wathen / Rebekah Panozzo AECOM Project No: 60623599_1.1

Laboratory Details
Lab Name: ~~Envirolab~~ ALS Smithfield
Lab Address: ~~12 Ashley St, Chatswood~~
Contact Name: ~~D Springer~~ B Hong
Lab. Ref:
Tel: ~~9910 6200~~
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No:
Project Name: Burrows IE
PO No. see project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr __5__days)	3 days
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details:)	

Lab ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filtered	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EN2005)	HOLD	TEH >C10 - C40	Hold	Other
13	BH115-0.1-0.2	29/11	Y					Y		JB						✓			
14	BH115 - 0.6-0.7									JB	✓	✓	✓	✓	✓				
15	BH115 - 1.0-1.1									JB						✓			
16	BH115 - 2.5-2.6									J	✓	✓	✓						
17	BH115 - 3.8-3.9									J						✓			
SWR -	QC302			Y						V							✓ →		different date to previous QC302
18	BH115 - 4.4-4.6 (4.4-4.5)		X							J						✓			
19	BH111 - 2.3-2.4	30/11	X							JB						✓			
20	BH111 - 3.2-3.3									JB						✓			
21	BH111 - 4.3-4.5								No bag	JB						✓			
22	BH111 - 0.15-0.20									JB						✓			
23	BH111 - 0.3-0.4									JB	✓	✓	✓	✓					
24	BH111 - 0.65-0.75									JB		✓	✓	✓					
SWR -	QC106									J						✓			

same date on both QC302 and QC106

1216

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn
Comments: 3G (1
Lab Report No.:
Esky ID

Relinquished by:	Signed:	Date: ~~19/07/2019~~	Relinquished by:	Signed:	Date:
Recieved by:	Signed:	Date:	Recieved by: Shashi Lal	Signed:	Date: 30/01/20

25 BH111 - 1.5-1.6 No jar JB ✓ (HOLD).

CHAIN OF CUSTODY

AECOM Australia Pty Ltd		**Laboratory Details**	
Sydney (420 George St)	T: 02 8934 0451 M: 0400 973 821	Lab Name: **ALS**	Tel: 8784 8515
		Lab Address: 277 Woodpark Rd, Smithfield	Fax:
AECOM Project Manager: Alex Latham		Contact Name: Brenda Hong	Preliminary Report by:
AECOM Project Manager Email: **Alex.Latham@aecom.com**		Lab. Ref:	Final Report by:
			Lab Quote No: **EN/004/16**
Sampled By: Kurtis Wathen / Rebekah Panozzo	AECOM Project No: **60623599_1.1**	Project Name: Burrows IE	PO No. refer Project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis & XLS format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr _5_ days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: ____)	

Analysis Request

NOTE. send requested soil QC samples to Envirolab with crushed ice please

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filtered	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200N)	TRH > C10-C40 (EP071)	HOLD
26	BH113_0.8-1.0 *	29/1/20	✓					✓		J+B							✓
27	QC104	28/1/20	✓					✓		Jar							✓
1217 28	BH110_0.35-0.36	28/1/20	✓					✓		J+B	✓	✓	✓	✓	✓		
29	BH110_0.4-0.6	↓	✓					✓		J+B		✓	✓		✓		
30	BH110_0.9-1.0	↓	✓					✓		J+B							✓
31	BH110_1.2-1.3	↓	✓					✓		J+B		✓	✓				
32	BH110_5-5.1	↓	✓					✓		J							✓
33	BH110_6.1-6.2 ▩	↓	✓					✓ Bag not jar		J							✓
34	BH108_4.1_4.2	28/1/20	✓					✓		B							✓
	NOTE: These 9 samples were received under ES2002766.																
35	QC108	30/1/20	✓					✓	correct ID								✓

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments: * 1.0 - 1 (~~received as~~). ▩ BH110 not initially indicated.

Lab Report No. Esky ID

Relinquished by:	Signed:	Date:	Relinquished by:	Signed:	Date:
Recieved by:	Signed:	Date:	Recieved by:	Signed:	Date:

36	BH111_1.4-1.5	30/1/20	Jar	Received extra
37	BH115_0.7-0.8	29/1/20	Jar + Bag	
38	QC301	29/1/20	2x VOC vials	

CHAIN OF CUSTODY

AECOM Australia Pty Ltd		Laboratory Details	Tel: 9910 6200
Sydney (420 George St)	T: 02 8934 0451	Lab Name: Envirolab	Fax:
		Lab Address: 12 Ashley St, Chatswood	Preliminary Report by:
AECOM Project Manager: Alex Latham		Contact Name: D Springer	Final Report by:
AECOM Project Manager Email: **Alex.Latham@aecom.com**		Lab. Ref:	Lab Quote No:
Sampled By: Kurtis Wathen / Rebekah Panozzo	AECOM Project No: **60623599_1.1**	Project Name: Burrows IE	PO No. see project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr __5__days)	3 days
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM.5.1.1?	
5. Special storage requirements? (details: _____)	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filt'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Hold	Other
	BH116_0.3-0.4	30/11/20	Y					Y		3 B					X	
	BH116_0.6-0.65									3 B						
1218	BH116_0.75-0.79									5 B						
	QC107									0 -						
	BH117_2.2-2.3									3 B						
	BH117_3.1-3.3									3 B						
	BH117_0.3-0.4									3 B						
	BH117_0.8-0.9									3 B						
	BH117_1.3-1.4									3 B						
	BH117_2.2-2.3									3 B						
	BH117_3.1-3.2									3 B						
	BH117_3.9-4.0									3 B						
	BH117_4.4-4.5									3 -						
	QC302			X						3 -						

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments: 30/11/20

Lab Report No.

Esky ID

Relinquished by: R. Panozzo	Signed:	Date: ~~19/07/2019~~	Relinquished by:	Signed:	Date:
Recieved by:	Signed:	Date:	Recieved by: Shanlei Qi	Signed:	Date: 30/11/20

CHAIN OF CUSTODY

AECOM Australia Pty Ltd
Sydney (420 George St) T: 02 8934 0451

AECOM Project Manager: Alex Latham
AECOM Project Manager Email: **Alex.Latham@aecom.com**

Laboratory Details Tel: 9910 6200
Lab Name: Envirolab Fax:
Lab Address: 12 Ashley St, Chatswood Preliminary Report by:
Contact Name: D Springer Final Report by:
Lab. Ref: Lab Quote No:

Sampled By: Kurtis Wathen / Rebekah Panozzo AECOM Project No: **60623599_1.1**
Project Name: Burrows IE PO No. see project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr __5__days)	3 days
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filt'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Hold	Other
	BH115 - 0.1-0.2	29/11	Y					Y		TB					Y	
	BH115 - 0.6-0.7									TB						
1219	BH115 - 1.0-1.1									TB						
	BH115 - 2.5-2.6									T						
	BH115 - 3.8-3.9									T						
	QC302			Y						Y						
	BH115 - 4.4-4.6		X							T						
	BH111 - 2.3-2.4	30/11	X							TB						
	BH111 - 3.2-3.3									TB						
	BH111 - 4.3-4.5									TB						
	BH111 - 0.15-0.20									TB						
	BH111 - 0.3-0.4									TB						
	BH111 - 0.65-0.75									TB						
	QC106									T						

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments: 3611

Lab Report No. Esky ID

Relinquished by:	Signed:	Date: 19/07/2019	Relinquished by:	Signed:	Date:
Recieved by:	Signed:	Date:	Recieved by: Shahida	Signed:	Date: 30/11/20

BH111 - 1.5-1.6 TB

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2003366**	Page	: 1 of 13
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1-Burrows IE	Date Samples Received	: 03-Feb-2020 16:00
Order number	: 60623599_1.1	Date Analysis Commenced	: 05-Feb-2020
C-O-C number	: ----	Issue Date	: 11-Feb-2020 13:50
Sampler	: KURTIS WATHEN/REBEKAH PANOZZO		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 29		
No. of samples analysed	: 13		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

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

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

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

Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

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

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

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

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

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

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

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP071: Results of samples QC111 and QC114 have been confirmed by re-extraction and re-analysis.
- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
  Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
  The Asbestos (Fines and Fibrous) weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
  Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
  All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH103_0.15-0.25	BH103_0.85-0.95	BH103_2.0-2.1	BH104_0.8-0.9	BH104_1.6-1.7
				03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00
				ES2003366-001	ES2003366-002	ES2003366-004	ES2003366-008	ES2003366-010
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	4.6	11.6	26.0	11.3	26.1
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	No	No
Asbestos Type	1332-21-4	-	--	-	----	-	-	-
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	No	No	No
Sample weight (dry)	----	0.01	g	499	----	446	531	431
Synthetic Mineral Fibre	----	0.1	g/kg	No	----	No	No	No
Organic Fibre	----	0.1	g/kg	No	----	No	No	No
APPROVED IDENTIFIER:	----	-	--	A. SMYLIE	----	A. SMYLIE	A. SMYLIE	A. SMYLIE
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	<0.0004	----	<0.0004	<0.0004	<0.0004
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	<0.001	----	<0.001	<0.001	<0.001
ø Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	<0.1	<0.1
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	----	<0.01	<0.01	<0.01
ø Weight Used for % Calculation	----	0.0001	kg	0.499	----	0.446	0.531	0.431
ø Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	----	<0.0004	<0.0004	<0.0004
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	40	66	10	31
Cadmium	7440-43-9	1	mg/kg	<1	<1	13	<1	5
Chromium	7440-47-3	2	mg/kg	6	9	34	8	42
Copper	7440-50-8	5	mg/kg	10	93	2540	53	540
Lead	7439-92-1	5	mg/kg	19	319	1090	171	1610
Nickel	7440-02-0	2	mg/kg	3	12	39	19	66
Zinc	7440-66-6	5	mg/kg	31	304	17500	170	3720
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	0.7	1.4	0.7	1.1
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	1.3	<0.5	0.6	0.7
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	4.7	1.7	2.4	3.0

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH103_0.15-0.25	BH103_0.85-0.95	BH103_2.0-2.1	BH104_0.8-0.9	BH104_1.6-1.7
				03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00
				ES2003366-001	ES2003366-002	ES2003366-004	ES2003366-008	ES2003366-010
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Anthracene	120-12-7	0.5	mg/kg	<0.5	**1.5**	<0.5	**0.8**	**1.0**
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	**9.5**	**5.3**	**4.8**	**6.2**
Pyrene	129-00-0	0.5	mg/kg	<0.5	**8.9**	**4.6**	**4.6**	**6.2**
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	**4.3**	**3.6**	**2.2**	**3.0**
Chrysene	218-01-9	0.5	mg/kg	<0.5	**3.9**	**3.3**	**1.9**	**2.7**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	**5.2**	**4.9**	**2.7**	**4.4**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	**2.1**	**1.7**	**0.9**	**1.4**
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	**4.6**	**3.4**	**2.3**	**3.6**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	**2.1**	**1.5**	**1.0**	**1.8**
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	**2.7**	**1.8**	**1.4**	**2.5**
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	**50.8**	**31.8**	**25.6**	**36.5**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	**6.0**	**4.6**	**3.0**	**4.7**
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**6.3**	**4.9**	**3.3**	**5.0**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**6.5**	**5.1**	**3.5**	**5.2**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	**470**	**760**
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	**170**	**370**
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	**640**	**1130**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	----	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	----	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	**580**	**1000**
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	<100	**210**
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	**580**	**1210**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH103_0.15-0.25	BH103_0.85-0.95	BH103_2.0-2.1	BH104_0.8-0.9	BH104_1.6-1.7
				03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00
				ES2003366-001	ES2003366-002	ES2003366-004	ES2003366-008	ES2003366-010
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	----	----	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	----	----	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**85.6**	**85.2**	**86.2**	**85.5**	**90.4**
2-Chlorophenol-D4	93951-73-6	0.5	%	**90.1**	**88.9**	**89.6**	**89.6**	**94.0**
2.4.6-Tribromophenol	118-79-6	0.5	%	**61.2**	**72.2**	**72.3**	**72.6**	**79.7**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**97.5**	**96.9**	**96.0**	**95.7**	**98.8**
Anthracene-d10	1719-06-8	0.5	%	**92.4**	**87.6**	**89.5**	**89.8**	**92.8**
4-Terphenyl-d14	1718-51-0	0.5	%	**103**	**102**	**101**	**100**	**105**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**94.3**	----	----	**94.0**	**84.8**
Toluene-D8	2037-26-5	0.2	%	**93.7**	----	----	**105**	**93.5**
4-Bromofluorobenzene	460-00-4	0.2	%	**83.1**	----	----	**89.7**	**74.8**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH104_2.0-2.2	QC111	BH100_0.7-0.8	BH100_0.8-0.9	BH114_0.45-0.55
				03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00
				ES2003366-011	ES2003366-014	ES2003366-016	ES2003366-017	ES2003366-021
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	20.2	----	----	----	----
Moisture Content	----	1.0	%	----	28.2	33.6	28.5	16.1
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	No	No	Yes
Asbestos Type	1332-21-4	-	--	----	----	-	-	Ch + Am
Asbestos (Trace)	1332-21-4	5	Fibres	----	----	No	No	No
Sample weight (dry)	----	0.01	g	----	----	342	441	493
Synthetic Mineral Fibre	----	0.1	g/kg	----	----	No	No	No
Organic Fibre	----	0.1	g/kg	----	----	No	No	No
APPROVED IDENTIFIER:	----	-	--	----	----	A. SMYLIE	A. SMYLIE	A. SMYLIE
EA200N: Asbestos Quantification (non-NATA)								
Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	----	----	<0.0004	<0.0004	0.282
Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	----	----	<0.001	<0.001	0.110
ø Asbestos Containing Material	1332-21-4	0.1	g	----	----	<0.1	<0.1	6.5
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	----	----	<0.01	<0.01	0.20
ø Weight Used for % Calculation	----	0.0001	kg	----	----	0.342	0.441	0.493
ø Fibrous Asbestos >7mm	----	0.0004	g	----	----	<0.0004	<0.0004	0.260
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	35	32	12	30
Cadmium	7440-43-9	1	mg/kg	----	4	<1	3	16
Chromium	7440-47-3	2	mg/kg	----	32	116	8	186
Copper	7440-50-8	5	mg/kg	----	685	180	265	1190
Lead	7439-92-1	5	mg/kg	----	1900	1230	278	4520
Nickel	7440-02-0	2	mg/kg	----	65	23	11	592
Zinc	7440-66-6	5	mg/kg	----	3350	593	428	2890
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	1.2	1.7	2.5	1.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	0.5	1.0	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH104_2.0-2.2	QC111	BH100_0.7-0.8	BH100_0.8-0.9	BH114_0.45-0.55
				03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00
				ES2003366-011	ES2003366-014	ES2003366-016	ES2003366-017	ES2003366-021
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Phenanthrene	85-01-8	0.5	mg/kg	----	2.2	4.3	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	0.7	1.4	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	4.9	7.6	<0.5	0.8
Pyrene	129-00-0	0.5	mg/kg	----	4.9	7.1	<0.5	0.8
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	2.4	3.5	<0.5	0.6
Chrysene	218-01-9	0.5	mg/kg	----	2.3	2.9	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	3.8	4.0	<0.5	0.8
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	1.3	1.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	3.1	3.6	<0.5	0.6
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	1.6	1.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	2.2	1.8	<0.5	<0.5
Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	29.9	40.2	<0.5	3.6
Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	4.0	4.7	<0.5	0.7
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	4.3	4.9	0.6	1.0
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	4.6	5.2	1.2	1.4
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	650	430	150	<100	230
C29 - C36 Fraction	----	100	mg/kg	390	300	120	<100	210
^ C10 - C36 Fraction (sum)	----	50	mg/kg	1040	730	270	<50	440
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	930	620	230	<100	390
>C34 - C40 Fraction	----	100	mg/kg	200	180	<100	<100	110
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	1130	800	230	<50	500
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH104_2.0-2.2	QC111	BH100_0.7-0.8	BH100_0.8-0.9	BH114_0.45-0.55
				03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00
				ES2003366-011	ES2003366-014	ES2003366-016	ES2003366-017	ES2003366-021
				Result	Result	Result	Result	Result
EP080: BTEXN - 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
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	83.6	83.5	86.7	88.4
2-Chlorophenol-D4	93951-73-6	0.5	%	----	88.1	88.4	91.5	92.8
2.4.6-Tribromophenol	118-79-6	0.5	%	----	74.6	73.2	69.6	69.8
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	92.9	93.8	97.8	99.8
Anthracene-d10	1719-06-8	0.5	%	----	86.6	87.3	93.9	92.9
4-Terphenyl-d14	1718-51-0	0.5	%	----	98.5	98.5	103	105
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	93.5	86.9	84.3	84.6	105
Toluene-D8	2037-26-5	0.2	%	99.8	89.2	86.7	86.2	114
4-Bromofluorobenzene	460-00-4	0.2	%	85.4	86.4	85.7	76.5	89.9

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH114_1.3-1.4	QC114	----	----	----
				03-Feb-2020 00:00	03-Feb-2020 00:00	----	----	----
				ES2003366-023	ES2003366-024	--------	--------	--------
				Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	37.2	20.6	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	55	33	----	----	----
Cadmium	7440-43-9	1	mg/kg	23	55	----	----	----
Chromium	7440-47-3	2	mg/kg	1240	234	----	----	----
Copper	7440-50-8	5	mg/kg	2870	1570	----	----	----
Lead	7439-92-1	5	mg/kg	4600	6150	----	----	----
Nickel	7440-02-0	2	mg/kg	885	456	----	----	----
Zinc	7440-66-6	5	mg/kg	9880	3310	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	2.8	1.3	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	0.8	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	0.7	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	0.6	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	2.1	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH114_1.3-1.4	QC114	----	----	----
				03-Feb-2020 00:00	03-Feb-2020 00:00	----	----	----
				ES2003366-023	ES2003366-024	--------	--------	--------
				Result	Result	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued								
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg	140	160	----	----	----
C29 - C36 Fraction	----	100	mg/kg	140	160	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	280	320	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	240	290	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	240	290	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	----	----	----
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	88.6	85.9	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	92.4	90.1	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%	73.2	69.6	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	98.3	96.4	----	----	----
Anthracene-d10	1719-06-8	0.5	%	93.6	94.1	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	104	104	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	87.6	97.6	----	----	----
Toluene-D8	2037-26-5	0.2	%	92.9	107	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH114_1.3-1.4	QC114	----	----	----
				03-Feb-2020 00:00	03-Feb-2020 00:00	----	----	----
				ES2003366-023	ES2003366-024	--------	--------	--------
				Result	Result	----	----	----
EP080S: TPH(V)/BTEX Surrogates - Continued								
4-Bromofluorobenzene	460-00-4	0.2	%	**83.7**	**90.0**	**----**	**----**	**----**

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Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				QC304	----	----	----	----
				03-Feb-2020 00:00	----	----	----	----
				ES2003366-029	--------	--------	--------	--------
				Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L	<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**85.2**	----	----	----	----
Toluene-D8	2037-26-5	2	%	**103**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	**106**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH103_0.15-0.25 - 03-Feb-2020 00:00	Mid brown soil.
EA200: Description	BH103_2.0-2.1 - 03-Feb-2020 00:00	Mid brown soil.
EA200: Description	BH104_0.8-0.9 - 03-Feb-2020 00:00	Mid brown soil.
EA200: Description	BH104_1.6-1.7 - 03-Feb-2020 00:00	Mid brown soil.
EA200: Description	BH100_0.7-0.8 - 03-Feb-2020 00:00	Mid brown soil.
EA200: Description	BH100_0.8-0.9 - 03-Feb-2020 00:00	Mid brown soil.
EA200: Description	BH114_0.45-0.55 - 03-Feb-2020 00:00	Mid brown soil containing one piece of fibrous asbestos fibre board approximately 20x10x5mm and several pieces of asbestos cement sheeting approximately 30x30x5mm with plenty of smaller fragments of fibrous asbestos fibre board.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
□□ □□□□□	□□ □□□ □□	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

Sub-Matrix: WATER		Recovery Limits (%)	
□□ □□□□□	□□ □□□ □□	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: **ES2003366**	Page	: 1 of 9
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1-Burrows IE	Date Samples Received	: 03-Feb-2020
Order number	: 60623599_1.1	Date Analysis Commenced	: 05-Feb-2020
C-O-C number	: ----	Issue Date	: 11-Feb-2020
Sampler	: KURTIS WATHEN/REBEKAH PANOZZO		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 29		
No. of samples analysed	: 13		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

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

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

Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2847589)									
ES2003366-023	BH114_1.3-1.4	EG005T: Copper	7440-50-8	5	mg/kg	2870	3000	4.44	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	4600	3790	19.4	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	9880	9230	6.86	0% - 20%
ES2002853-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	6	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	6	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	166	149	10.6	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	24	23	4.92	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	98	83	15.9	0% - 50%
ES2003366-023	BH114_1.3-1.4	EG005T: Cadmium	7440-43-9	1	mg/kg	23	27	18.2	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	1240	1200	2.79	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	885	801	9.98	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	55	37	38.9	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2847593)									
ES2003366-002	BH103_0.85-0.95	EA055: Moisture Content	---	0.1	%	11.6	11.7	0.00	0% - 50%
ES2003476-002	Anonymous	EA055: Moisture Content	---	0.1	%	11.1	11.5	3.40	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2849180)									
ES2003337-012	Anonymous	EA055: Moisture Content	---	0.1	%	3.4	3.2	6.92	0% - 20%
ES2003518-011	Anonymous	EA055: Moisture Content	---	0.1	%	4.2	4.0	3.96	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2847590)									
ES2002853-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES2003366-023	BH114_1.3-1.4	EG035T: Mercury	7439-97-6	0.1	mg/kg	2.8	2.5	11.9	0% - 20%
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2841968)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2841968) - continued									
ES2003366-001	BH103_0.15-0.25	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES2003366-024	QC114	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	0.8	0.5	43.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	0.7	<0.5	36.3	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	0.6	0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	2.1	1.0	71.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2841969)									
ES2003366-001	BH103_0.15-0.25	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES2003366-024	QC114	EP071: C15 - C28 Fraction	----	100	mg/kg	160	190	15.6	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	160	170	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2843136)									
ES2003366-001	BH103_0.15-0.25	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES2003463-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2841969)									
ES2003366-001	BH103_0.15-0.25	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES2003366-024	QC114	EP071: >C16 - C34 Fraction	----	100	mg/kg	290	310	8.44	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2843136)									
ES2003366-001	BH103_0.15-0.25	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES2003463-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080: BTEXN (QC Lot: 2843136)									
ES2003366-001	BH103_0.15-0.25	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES2003463-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2845751)									
ES2003311-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
ES2003311-007	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2845751)									
ES2003311-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
ES2003311-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2845751)									
ES2003311-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
ES2003311-007	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

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

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

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2847589)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	100	86.0	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	93.6	83.0	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	100	76.0	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	96.7	86.0	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	93.4	80.0	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	102	87.0	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	101	80.0	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2847590)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	83.2	70.0	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2841968)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	100	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	101	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	97.0	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	102	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	102	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	100	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	104	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	102	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	91.0	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	92.1	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	88.3	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	92.6	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	92.1	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	75.8	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	71.1	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	78.2	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2841969)								
EP071: C10 - C14 Fraction	---	50	mg/kg	<50	300 mg/kg	110	75.0	129
EP071: C15 - C28 Fraction	---	100	mg/kg	<100	450 mg/kg	109	77.0	131
EP071: C29 - C36 Fraction	---	100	mg/kg	<100	300 mg/kg	97.3	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2843136)								
EP080: C6 - C9 Fraction	---	10	mg/kg	<10	26 mg/kg	77.3	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2841969)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2841969) - continued								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	107	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	106	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	85.0	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2843136)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	76.6	68.4	128
EP080: BTEXN (QCLot: 2843136)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	80.2	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	83.9	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	89.6	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	87.6	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	87.4	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	84.0	63.0	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2845751)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	83.8	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2845751)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	90.5	75.0	127
EP080: BTEXN (QCLot: 2845751)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	90.7	70.0	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	89.2	69.0	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	86.6	70.0	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	85.2	69.0	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	88.9	72.0	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	95.0	70.0	120

Matrix Spike (MS) Report

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

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2847589)							
ES2002853-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	99.6	70.0	130

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2847589) - continued							
ES2002853-001	Anonymous	EG005T: Cadmium	7440-43-9	50 mg/kg	91.5	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	99.3	70.0	130
		EG005T: Copper	7440-50-8	250 mg/kg	84.0	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	91.7	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	92.0	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	73.8	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2847590)							
ES2002853-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	90.9	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2841968)							
ES2003366-001	BH103_0.15-0.25	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	92.4	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	95.4	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2841969)							
ES2003366-001	BH103_0.15-0.25	EP071: C10 - C14 Fraction	----	523 mg/kg	105	73.0	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	117	53.0	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	132	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2843136)							
ES2003366-001	BH103_0.15-0.25	EP080: C6 - C9 Fraction	----	32.5 mg/kg	102	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2841969)							
ES2003366-001	BH103_0.15-0.25	EP071: >C10 - C16 Fraction	----	860 mg/kg	109	73.0	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	121	53.0	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	126	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2843136)							
ES2003366-001	BH103_0.15-0.25	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	110	70.0	130
EP080: BTEXN (QCLot: 2843136)							
ES2003366-001	BH103_0.15-0.25	EP080: Benzene	71-43-2	2.5 mg/kg	88.1	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	87.1	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	91.3	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	88.0	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	89.2	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	88.4	70.0	130

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2845751)							
ES2003311-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	118	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2845751)							
ES2003311-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	70.0	130
EP080: BTEXN (QCLot: 2845751)							
ES2003311-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	90.6	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	90.6	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	94.1	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	91.8	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	93.7	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	96.1	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2003366**	Page	: 1 of 8
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1-Burrows IE	Date Samples Received	: 03-Feb-2020
Site	: ----	Issue Date	: 11-Feb-2020
Sampler	: KURTIS WATHEN/REBEKAH PANOZZO	No. of samples received	: 29
Order number	: 60623599_1.1	No. of samples analysed	: 13

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

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Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

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

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

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

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

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

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Snap Lock Bag: Separate bag received (EA055)							
BH114_0.45-0.55	**03-Feb-2020**	**----**	----	----	**07-Feb-2020**	17-Feb-2020	✓
Soil Glass Jar - Unpreserved (EA055)							
BH103_0.15-0.25, BH103_0.85-0.95, BH103_2.0-2.1, BH104_0.8-0.9, BH104_1.6-1.7, QC111, BH100_0.7-0.8, BH100_0.8-0.9, BH114_1.3-1.4, QC114	**03-Feb-2020**	**----**	----	----	**07-Feb-2020**	17-Feb-2020	✓
Soil Glass Jar - Unpreserved (EA055)							
BH104_2.0-2.2	**03-Feb-2020**	**----**	----	----	**09-Feb-2020**	17-Feb-2020	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)							
BH103_0.15-0.25, BH103_2.0-2.1, BH104_0.8-0.9, BH104_1.6-1.7, BH100_0.7-0.8, BH100_0.8-0.9	**03-Feb-2020**	**----**	----	----	**06-Feb-2020**	01-Aug-2020	✓
Soil Glass Jar - Unpreserved (EA200)							
BH114_0.45-0.55	**03-Feb-2020**	**----**	----	----	**06-Feb-2020**	01-Aug-2020	✓
EA200N: Asbestos Quantification (non-NATA)							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)							
BH103_0.15-0.25, BH103_2.0-2.1, BH104_0.8-0.9, BH104_1.6-1.7, BH100_0.7-0.8, BH100_0.8-0.9	**03-Feb-2020**	**----**	----	----	**06-Feb-2020**	01-Aug-2020	✓
Soil Glass Jar - Unpreserved (EA200N)							
BH114_0.45-0.55	**03-Feb-2020**	**----**	----	----	**06-Feb-2020**	01-Aug-2020	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)T: Total Metals by ICP-AES								
Snap Lock Bag: Separate bag received (EG005T)								
BH114_0.45-0.55		**03-Feb-2020**	**07-Feb-2020**	01-Aug-2020	✓	**08-Feb-2020**	01-Aug-2020	✓
Soil Glass Jar - Unpreserved (EG005T)								
BH103_0.15-0.25,	BH103_0.85-0.95,	**03-Feb-2020**	**07-Feb-2020**	01-Aug-2020	✓	**08-Feb-2020**	01-Aug-2020	✓
BH103_2.0-2.1,	BH104_0.8-0.9,							
BH104_1.6-1.7,	QC111,							
BH100_0.7-0.8,	BH100_0.8-0.9,							
BH114_1.3-1.4,	QC114							
EG035T: Total Recoverable Mercury by FIMS								
Snap Lock Bag: Separate bag received (EG035T)								
BH114_0.45-0.55		**03-Feb-2020**	**07-Feb-2020**	02-Mar-2020	✓	**08-Feb-2020**	02-Mar-2020	✓
Soil Glass Jar - Unpreserved (EG035T)								
BH103_0.15-0.25,	BH103_0.85-0.95,	**03-Feb-2020**	**07-Feb-2020**	02-Mar-2020	✓	**08-Feb-2020**	02-Mar-2020	✓
BH103_2.0-2.1,	BH104_0.8-0.9,							
BH104_1.6-1.7,	QC111,							
BH100_0.7-0.8,	BH100_0.8-0.9,							
BH114_1.3-1.4,	QC114							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Snap Lock Bag: Separate bag received (EP075(SIM))								
BH114_0.45-0.55		**03-Feb-2020**	**06-Feb-2020**	17-Feb-2020	✓	**06-Feb-2020**	17-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH103_0.15-0.25,	BH103_0.85-0.95,	**03-Feb-2020**	**06-Feb-2020**	17-Feb-2020	✓	**06-Feb-2020**	17-Mar-2020	✓
BH103_2.0-2.1,	BH104_0.8-0.9,							
BH104_1.6-1.7,	QC111,							
BH100_0.7-0.8,	BH100_0.8-0.9,							
BH114_1.3-1.4,	QC114							

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Snap Lock Bag: Separate bag received (EP080)							
BH114_0.45-0.55	**03-Feb-2020**	**05-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Feb-2020	✓
Snap Lock Bag: Separate bag received (EP071)							
BH114_0.45-0.55	**03-Feb-2020**	**06-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH103_0.15-0.25, BH104_0.8-0.9, BH104_1.6-1.7, BH104_2.0-2.2, QC111, BH100_0.7-0.8, BH100_0.8-0.9, BH114_1.3-1.4, QC114	**03-Feb-2020**	**05-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP071)							
BH103_0.15-0.25, BH104_0.8-0.9, BH104_1.6-1.7, BH104_2.0-2.2, QC111, BH100_0.7-0.8, BH100_0.8-0.9, BH114_1.3-1.4, QC114	**03-Feb-2020**	**06-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Mar-2020	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Snap Lock Bag: Separate bag received (EP080)							
BH114_0.45-0.55	**03-Feb-2020**	**05-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Feb-2020	✓
Snap Lock Bag: Separate bag received (EP071)							
BH114_0.45-0.55	**03-Feb-2020**	**06-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH103_0.15-0.25, BH104_0.8-0.9, BH104_1.6-1.7, BH104_2.0-2.2, QC111, BH100_0.7-0.8, BH100_0.8-0.9, BH114_1.3-1.4, QC114	**03-Feb-2020**	**05-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP071)							
BH103_0.15-0.25, BH104_0.8-0.9, BH104_1.6-1.7, BH104_2.0-2.2, QC111, BH100_0.7-0.8, BH100_0.8-0.9, BH114_1.3-1.4, QC114	**03-Feb-2020**	**06-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Mar-2020	✓
EP080: BTEXN							
Snap Lock Bag: Separate bag received (EP080)							
BH114_0.45-0.55	**03-Feb-2020**	**05-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH103_0.15-0.25, BH104_0.8-0.9, BH104_1.6-1.7, BH104_2.0-2.2, QC111, BH100_0.7-0.8, BH100_0.8-0.9, BH114_1.3-1.4, QC114	**03-Feb-2020**	**05-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Feb-2020	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC304	**03-Feb-2020**	**07-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Feb-2020	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC304	**03-Feb-2020**	**07-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Feb-2020	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC304	**03-Feb-2020**	**07-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Feb-2020	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	20	15.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 6.1 and Table 1 (14 day holding time).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	* EA200N	SOIL	Asbestos Classification and Quantitation per NEPM 2013 with Confirmation of Identification by AS 4964 - 2004 Gravimetric determination of Asbestos Containing Material, Fibrous Asbestos, Asbestos Fines and sample weight and calculation of percentage concentrations per NEPM protocols. Asbestos (Fines and Fibrous FA+AF) is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)

Preparation Methods	Method	Matrix	Method Descriptions
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2003366**

Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Brenda.Hong@ALSGlobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60623599_1.1-Burrows IE	Page	: 1 of 4
Order number	: 60623599_1.1	Quote number	: EB2017AECOMAU0014 (EN/004/16)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: KURTIS WATHEN/REBEKAH PANOZZO		

Dates

Date Samples Received	: 03-Feb-2020 16:00	Issue Date	: 05-Feb-2020
Client Requested Due Date	: 10-Feb-2020	Scheduled Reporting Date	: **10-Feb-2020**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 5.2'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 29 / 13

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

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

Method / Client sample ID	Sample Container Received	Preferred Sample Container for Analysis
Asbestos Classification and Quantitation per NEPM 2013 : EA200N		
BH114_0.45-0.55	- Soil Glass Jar - Unpreserved	- Snap Lock Bag: Separate bag received
Moisture Content : EA055		
BH114_0.45-0.55	- Snap Lock Bag: Separate bag received	- Soil Glass Jar - Unpreserved
PAH/Phenols (SIM) : EP075(SIM)		
BH114_0.45-0.55	- Snap Lock Bag: Separate bag received	- Soil Glass Jar - Unpreserved
Total Mercury by FIMS : EG035T		
BH114_0.45-0.55	- Snap Lock Bag: Separate bag received	- Soil Glass Jar - Unpreserved
Total Metals by ICP-AES : EG005T		
BH114_0.45-0.55	- Snap Lock Bag: Separate bag received	- Soil Glass Jar - Unpreserved
TRH - Semivolatile Fraction : EP071		
BH114_0.45-0.55	- Snap Lock Bag: Separate bag received	- Soil Glass Jar - Unpreserved
TRH Volatiles/BTEX : EP080		
BH114_0.45-0.55	- Snap Lock Bag: Separate bag received	- Soil Glass Jar - Unpreserved

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - EP075 SIM PAH only SIM - PAH only	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-04 TRH/BTEXN	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2003366-001	03-Feb-2020 00:00	BH103_0.15-0.25		✓	✓				✓
ES2003366-002	03-Feb-2020 00:00	BH103_0.85-0.95		✓		✓	✓		
ES2003366-003	03-Feb-2020 00:00	BH103_1.3-1.4	✓						
ES2003366-004	03-Feb-2020 00:00	BH103_2.0-2.1		✓	✓	✓	✓		
ES2003366-005	03-Feb-2020 00:00	BH103_4.4-4.5	✓						
ES2003366-006	03-Feb-2020 00:00	QC112	✓						
ES2003366-007	03-Feb-2020 00:00	BH104_0.15-0.25	✓						
ES2003366-008	03-Feb-2020 00:00	BH104_0.8-0.9		✓	✓				✓
ES2003366-009	03-Feb-2020 00:00	BH104_1.4-1.5	✓						
ES2003366-010	03-Feb-2020 00:00	BH104_1.6-1.7		✓	✓				✓
ES2003366-011	03-Feb-2020 00:00	BH104_2.0-2.2		✓				✓	
ES2003366-012	03-Feb-2020 00:00	BH104_3.3-3.4	✓						
ES2003366-013	03-Feb-2020 00:00	BH104_4.4-4.5	✓						
ES2003366-014	03-Feb-2020 00:00	QC111		✓					✓
ES2003366-015	03-Feb-2020 00:00	BH100_0.15-0.25	✓						
ES2003366-016	03-Feb-2020 00:00	BH100_0.7-0.8		✓	✓				✓
ES2003366-017	03-Feb-2020 00:00	BH100_0.8-0.9		✓	✓				✓
ES2003366-018	03-Feb-2020 00:00	BH100_3.4-.35	✓						
ES2003366-019	03-Feb-2020 00:00	QC113	✓						

			(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - EP075 SIM PAH only SIM - PAH only	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-04 TRH/BTEXN	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2003366-020	03-Feb-2020 00:00	BH114_0.15-0.25	✓						
ES2003366-021	03-Feb-2020 00:00	BH114_0.45-0.55		✓	✓				✓
ES2003366-022	03-Feb-2020 00:00	BH114_0.8-0.9	✓						
ES2003366-023	03-Feb-2020 00:00	BH114_1.3-1.4		✓					✓
ES2003366-024	03-Feb-2020 00:00	QC114		✓					✓
ES2003366-025	03-Feb-2020 00:00	BH114_2.3-2.4	✓						
ES2003366-026	03-Feb-2020 00:00	BH114_2.75-2.85	✓						
ES2003366-027	03-Feb-2020 00:00	BH114_3.3-3.4	✓						
ES2003366-028	03-Feb-2020 00:00	BH114_5.0-5.1	✓						

Matrix: **WATER**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2003366-029	03-Feb-2020 00:00	QC304	✓

Proactive Holding Time Report

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

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

ALEX LATHAM

- *AU Certificate of Analysis - NATA (COA)	Email	alex.latham@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	alex.latham@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	alex.latham@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	alex.latham@aecom.com
- Chain of Custody (CoC) (COC)	Email	alex.latham@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	alex.latham@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	alex.latham@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	alex.latham@aecom.com
- EDI Format - XTab (XTAB)	Email	alex.latham@aecom.com
- Electronic SRN for EQuIS (ESRN_EQUIS)	Email	alex.latham@aecom.com

. updated COC - 10:59am 4/2/2020

1/2 .

CUSTODY

as marked on Jar ~~and~~

AECOM Australia Pty Ltd		Laboratory Details	
Sydney (420 George St)	T: 02 8934 0451 / M: 0400 973 821 — * rename QC111 to QC112, QC110 to QC111	Lab Name: ALS	Tel: 8784 8515
		Lab Address: 277 Woodpark Rd, Smithfield	Fax:
AECOM Project Manager: Alex Latham		Contact Name: Brenda Hong	Preliminary Report by:
AECOM Project Manager Email: **Alex.Latham@aecom.com**		Lab. Ref:	Final Report by:
			Lab Quote No: **EN/004/16**
Sampled By: Kurtis Wathen / Rebekah Panozzo	AECOM Project No: 60623599-1.1	Project Name: Burrows IE	PO No. refer Project #

Specifications: All reports to be emailed to AECOM Project Manager

ESDAT & Equis & XLS format also required

1. Urgent TAT required? (please circle: 24hr 48hr __5__days)
2. Fast TAT Guarantee Required?
3. Is any sediment layer present in waters to be excluded from extractions?
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?
5. Special storage requirements? (details: ____________

Yes

Lab / Split WO / Analysis / Organised By / Date: Newcastle / Relinquished By / Date: Asbestos / Connote / Courier / WO No: / Attach By PO / Internal Sheet:

Analysis Request

send requested soil QC samples to Envirolab with crushed ice please

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filt'd	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200N)	HOLD	TRH > C10-C40 (EP071)
1	BH103_0.15-0.25	3/2/20	✓					✓		J B	✓	✓	✓		✓		
2	BH103_0.85-0.95									J B		✓	✓				
3	BH103_1.3-1.4									J B						✓	
4	BH103_2.0-2.1									J B		✓	✓		✓		
5	BH103_4.4-4.5									J B						✓	
6	QC111 * QC112									J –						✓	
7	BH104_0.15-0.25									J B						✓	
8	BH104_0.8-0.9									J B	✓	✓	✓		✓		
9	BH104_1.4-1.5									P B							
10	BH104_1.6-1.7									J B	✓	✓	✓		✓		
11	BH104_2.0-2.2									J B	✓						
12	BH104_3.3-3.4									J B						✓	
13	BH104_4.4-4.5									J B						✓	
14	QC110 * QC111									J –	✓	✓	✓				

Environmental Division Sydney
Work Order Reference
ES2003366

Telephone : +61-2-8784 8555

*Metals Required:	As, Cd, Cr, Cu, Hg, Ni, Pb, Zn	Comments:		Lab Report No.	Esky ID
Relinquished by: R Panozzo	Signed: R.P.	Date: 3/2/20	Relinquished by:	Signed:	Date:
Recieved by:	Signed:	Date:	Recieved by: FM	Signed:	Date: 3/2/20

Field_Worksheet_FORM025_Dec04

2/2.

CHAIN OF CUSTODY

AECOM Australia Pty Ltd
Sydney (420 George St) T: 02 8934 0451

AECOM Project Manager: Alex Latham
AECOM Project Manager Email: **Alex.Latham@aecom.com**
Sampled By: Kurtis Wathen / Rebekah Panozzo AECOM Project No: **60623599_1.1**

Laboratory Details
Lab Name: ~~Envirolab~~ ALS
Lab Address: ~~12 Ashley St, Chatswood~~
Contact Name: ~~D Springer~~ Brenda
Lab. Ref:
Project Name: Burrows IE

Tel: 9910 6200
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No:
PO No. see project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr _5_days)	3 days
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details:)	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filt'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	ASS (CE #200N)	HOLD		TRH C6-10/BTEX	Hold	Other
15	4100_0.15-0.25	3/2	Y					Y		J B						✓				QC304 for TRH C6-10/BTEXN
16	BH100_0.7-0.8									J B	✓	✓	✓		✓					
17	BH100_0.8-0.9									J B	✓	✓	✓		✓					
18	BH100_3.4-3.5									J B						✓				
19	QC117									J -						✓				
20	BH114_0.15-0.25									J B						✓				
21	BH114_0.45-0.55									J B	✓	✓	✓		✓					
22	BH114_0.8-0.9									J B						✓				
23	BH114_1.3-1.4									J B	✓	✓	✓							
24	QC114									J -	✓	✓	✓							
25	BH114_2.3-2.4									J B						✓				
26	BH114_2.75-2.85									J B						✓				
27	BH114_3.3-3.4									J B						✓				
29	BH114_5.0-5.1									J B						✓				

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn
Comments: 3/2/20
Lab Report No. Esky ID

Relinquished by: R.Panozzo Signed: R.Pa Date: ~~10/07/2019~~ Relinquished by: Signed: Date:
Recieved by: Signed: Date: Recieved by: Signed: Date: 3/2/20

29 QC304

Field_Worksheet_FORM025_Dec04

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2003481**	Page	: 1 of 12
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1-Burrows IE	Date Samples Received	: 31-Jan-2020 18:00
Order number	: 60623599_1.1	Date Analysis Commenced	: 05-Feb-2020
C-O-C number	: ----	Issue Date	: 10-Feb-2020 19:31
Sampler	: Kurtis Wathen, REBEKAH PANOZZO		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 23		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

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

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

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

Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

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General Comments

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

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

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

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

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

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

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
  Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
  The Asbestos (Fines and Fibrous) weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
  Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
  All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH105_0.4-0.5	BH105_0.85-0.95	BH105_1.7-1.8	BH102_0.3-0.4	BH102_0.5-0.6
				31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00
				ES2003481-002	ES2003481-004	ES2003481-005	ES2003481-010	ES2003481-011
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	22.5	29.6	21.9	7.6	12.4
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	No
Asbestos Type	1332-21-4	-	--	-	----	----	----	-
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	----	----	No
Sample weight (dry)	----	0.01	g	336	----	----	----	503
Synthetic Mineral Fibre	----	0.1	g/kg	No	----	----	----	No
Organic Fibre	----	0.1	g/kg	No	----	----	----	No
APPROVED IDENTIFIER:	----	-	--	A. SMYLIE	----	----	----	A. SMYLIE
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	<0.0004	----	----	----	<0.0004
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	<0.001	----	----	----	<0.001
ø Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	----	<0.1
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	----	----	----	<0.01
ø Weight Used for % Calculation	----	0.0001	kg	0.336	----	----	----	0.503
ø Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	----	----	----	<0.0004
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	8	25	66	<5	9
Cadmium	7440-43-9	1	mg/kg	<1	3	7	<1	<1
Chromium	7440-47-3	2	mg/kg	16	20	76	5	19
Copper	7440-50-8	5	mg/kg	336	2130	431	23	367
Lead	7439-92-1	5	mg/kg	606	2260	11800	71	2010
Nickel	7440-02-0	2	mg/kg	20	135	283	3	12
Zinc	7440-66-6	5	mg/kg	676	4890	1320	49	712
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.1	0.4	0.3	0.1	56.4
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	1.2	<0.5	<0.5	3.3

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH105_0.4-0.5	BH105_0.85-0.95	BH105_1.7-1.8	BH102_0.3-0.4	BH102_0.5-0.6
				31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00
				ES2003481-002	ES2003481-004	ES2003481-005	ES2003481-010	ES2003481-011
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**0.9**
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	**3.1**	<0.5	<0.5	**6.2**
Pyrene	129-00-0	0.5	mg/kg	<0.5	**3.1**	<0.5	<0.5	**6.0**
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	**2.4**	<0.5	<0.5	**2.8**
Chrysene	218-01-9	0.5	mg/kg	<0.5	**3.0**	<0.5	<0.5	**2.6**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	**5.3**	<0.5	<0.5	**3.5**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	**2.1**	<0.5	<0.5	**1.2**
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	**3.4**	<0.5	<0.5	**3.3**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	**2.7**	<0.5	<0.5	**1.1**
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	**0.6**	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	**4.3**	<0.5	<0.5	**1.4**
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	**31.2**	<0.5	<0.5	**32.3**
Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	**5.3**	<0.5	<0.5	**4.2**
Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**5.3**	**0.6**	**0.6**	**4.4**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**5.3**	**1.2**	**1.2**	**4.7**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	<50
C15 - C28 Fraction	----	100	mg/kg	<100	**140**	----	----	**140**
C29 - C36 Fraction	----	100	mg/kg	**180**	**260**	----	----	**110**
^ C10 - C36 Fraction (sum)	----	50	mg/kg	**180**	**400**	----	----	**250**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	----	----	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg	**210**	**330**	----	----	**200**
>C34 - C40 Fraction	----	100	mg/kg	**140**	**150**	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	**350**	**480**	----	----	**200**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	----	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	<0.5

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH105_0.4-0.5	BH105_0.85-0.95	BH105_1.7-1.8	BH102_0.3-0.4	BH102_0.5-0.6
				31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00
				ES2003481-002	ES2003481-004	ES2003481-005	ES2003481-010	ES2003481-011
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	----	----	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**81.0**	**80.6**	**84.7**	**83.0**	**85.2**
2-Chlorophenol-D4	93951-73-6	0.5	%	**83.8**	**83.1**	**87.0**	**87.6**	**87.5**
2.4.6-Tribromophenol	118-79-6	0.5	%	**54.8**	**69.5**	**60.7**	**61.9**	**71.8**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**81.3**	**79.7**	**79.8**	**82.2**	**83.6**
Anthracene-d10	1719-06-8	0.5	%	**82.7**	**85.2**	**87.8**	**88.5**	**87.4**
4-Terphenyl-d14	1718-51-0	0.5	%	**91.5**	**89.5**	**92.2**	**91.7**	**90.8**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**89.5**	**98.6**	----	----	**84.9**
Toluene-D8	2037-26-5	0.2	%	**91.0**	**101**	----	----	**89.6**
4-Bromofluorobenzene	460-00-4	0.2	%	**82.4**	**92.7**	----	----	**84.6**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH101_0.16-0.26	BH101_0.7-0.8	BH101_1.3-1.4	BH101_2.2-2.3	----
				31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	----
				ES2003481-015	ES2003481-017	ES2003481-019	ES2003481-020	--------
				Result	Result	Result	Result	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	13.4	31.4	----	26.2	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	Yes	----	----
Asbestos Type	1332-21-4	-	--	----	----	Ch	----	----
Asbestos (Trace)	1332-21-4	5	Fibres	----	----	No	----	----
Sample weight (dry)	----	0.01	g	----	----	402	----	----
Synthetic Mineral Fibre	----	0.1	g/kg	----	----	No	----	----
Organic Fibre	----	0.1	g/kg	----	----	No	----	----
APPROVED IDENTIFIER:	----	-	--	----	----	A. SMYLIE	----	----
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	----	----	0.125	----	----
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	----	----	0.031	----	----
ø Asbestos Containing Material	1332-21-4	0.1	g	----	----	<0.1	----	----
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	----	----	<0.01	----	----
ø Weight Used for % Calculation	----	0.0001	kg	----	----	0.402	----	----
ø Fibrous Asbestos >7mm	----	0.0004	g	----	----	<0.0004	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	59	----	56	----
Cadmium	7440-43-9	1	mg/kg	----	4	----	6	----
Chromium	7440-47-3	2	mg/kg	----	50	----	153	----
Copper	7440-50-8	5	mg/kg	----	1310	----	1440	----
Lead	7439-92-1	5	mg/kg	----	2490	----	2430	----
Nickel	7440-02-0	2	mg/kg	----	81	----	138	----
Zinc	7440-66-6	5	mg/kg	----	2410	----	3410	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	1.2	----	9.5	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH101_0.16-0.26	BH101_0.7-0.8	BH101_1.3-1.4	BH101_2.2-2.3	----
				31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	----
				ES2003481-015	ES2003481-017	ES2003481-019	ES2003481-020	--------
				Result	Result	Result	Result	----
EP068A: Organochlorine Pesticides (OC) - Continued								
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	----	----	----	----
^ Total Chlordane (sum)	----	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	----	----	----	----
Endosulfan (sum)	115-29-7	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	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg	<0.05	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH101_0.16-0.26	BH101_0.7-0.8	BH101_1.3-1.4	BH101_2.2-2.3	----
				31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	----
				ES2003481-015	ES2003481-017	ES2003481-019	ES2003481-020	--------
				Result	Result	Result	Result	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
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	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	----	**0.7**	----	**1.7**	----
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	**0.5**	----
Fluoranthene	206-44-0	0.5	mg/kg	----	**1.3**	----	**3.4**	----
Pyrene	129-00-0	0.5	mg/kg	----	**1.4**	----	**3.4**	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	**0.6**	----	**1.7**	----
Chrysene	218-01-9	0.5	mg/kg	----	**0.6**	----	**1.5**	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	**0.9**	----	**2.1**	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	**0.9**	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	**0.7**	----	**2.0**	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	**0.7**	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	**0.8**	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	**6.2**	----	**18.7**	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	**0.8**	----	**2.6**	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	**1.2**	----	**2.8**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	**1.5**	----	**3.1**	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	<10	----
C10 - C14 Fraction	----	50	mg/kg	----	<50	----	<50	----
C15 - C28 Fraction	----	100	mg/kg	----	**120**	----	**170**	----
C29 - C36 Fraction	----	100	mg/kg	----	**140**	----	**170**	----

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH101_0.16-0.26	BH101_0.7-0.8	BH101_1.3-1.4	BH101_2.2-2.3	----
				31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	----
				ES2003481-015	ES2003481-017	ES2003481-019	ES2003481-020	--------
				Result	Result	Result	Result	----
EP080/071: Total Petroleum Hydrocarbons - Continued								
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	**260**	----	**340**	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	----	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	----	<10	----
>C10 - C16 Fraction	----	50	mg/kg	----	<50	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg	----	**230**	----	**280**	----
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	**110**	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	**230**	----	**390**	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	----	<50	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	----	<0.2	----
^ Total Xylenes	----	0.5	mg/kg	----	<0.5	----	<0.5	----
Naphthalene	91-20-3	1	mg/kg	----	<1	----	<1	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	**98.3**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**98.4**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**87.1**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	**86.8**	----	**83.8**	----
2-Chlorophenol-D4	93951-73-6	0.5	%	----	**89.4**	----	**85.4**	----
2.4.6-Tribromophenol	118-79-6	0.5	%	----	**72.9**	----	**71.6**	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	**83.3**	----	**80.1**	----
Anthracene-d10	1719-06-8	0.5	%	----	**89.2**	----	**84.6**	----
4-Terphenyl-d14	1718-51-0	0.5	%	----	**91.9**	----	**87.2**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH101_0.16-0.26	BH101_0.7-0.8	BH101_1.3-1.4	BH101_2.2-2.3	----
				31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	----
				ES2003481-015	ES2003481-017	ES2003481-019	ES2003481-020	--------
				Result	Result	Result	Result	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	----	**83.2**	----	**90.2**	----
Toluene-D8	2037-26-5	0.2	%	----	**93.6**	----	**86.0**	----
4-Bromofluorobenzene	460-00-4	0.2	%	----	**83.0**	----	**77.9**	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				QC303	----	----	----	----
				31-Jan-2020 00:00	----	----	----	----
				ES2003481-022	--------	--------	--------	--------
				Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L	<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**79.1**	----	----	----	----
Toluene-D8	2037-26-5	2	%	**99.8**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	**99.5**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH105_0.4-0.5 - 31-Jan-2020 00:00	Mid brown soil.
EA200: Description	BH102_0.5-0.6 - 31-Jan-2020 00:00	Mid brown soil.
EA200: Description	BH101_1.3-1.4 - 31-Jan-2020 00:00	Mid brown soil containing many large asbestos fibre bundles approximately 10x4x2mm.