Attachment C14(f)

Proponent Phase I and Phase II Environmental Site Assessment (6/8)

Sub-Matrix: SOIL (Matrix: SOIL)				BH02_3.0-3.1	QC111	----	----	----
				[29-Aug-2015]	[29-Aug-2015]	----	----	----
				ES1529729-021	ES1529729-024	--------	--------	--------
				Result	Result	Result	Result	Result
EA055: Moisture Content								
^ **Moisture Content (dried @ 103°C)**	----	1	%	**41.9**	**14.6**	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	----	----
Asbestos Type	1332-21-4	-	--	----	----	----	----	----
Sample weight (dry)	----	0.01	g	----	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	----	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	**60**	----	----	----
Cadmium	7440-43-9	1	mg/kg	----	**7**	----	----	----
Chromium	7440-47-3	2	mg/kg	----	**68**	----	----	----
Copper	7440-50-8	5	mg/kg	----	**2240**	----	----	----
Lead	7439-92-1	5	mg/kg	----	**2230**	----	----	----
Nickel	7440-02-0	2	mg/kg	----	**107**	----	----	----
Zinc	7440-66-6	5	mg/kg	----	**3460**	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	**1.0**	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	**0.8**	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	----	**7.2**	----	----	----
Anthracene	120-12-7	0.5	mg/kg	----	**1.8**	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	----	**11.9**	----	----	----
Pyrene	129-00-0	0.5	mg/kg	----	**12.1**	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	**5.4**	----	----	----
Chrysene	218-01-9	0.5	mg/kg	----	**5.2**	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	**5.9**	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	**1.9**	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	**5.0**	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	**2.3**	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	**0.6**	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	**3.2**	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg	----	**63.3**	----	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH02_3.0-3.1	QC111	----	----	----
				[29-Aug-2015]	[29-Aug-2015]	----	----	----
				ES1529729-021	ES1529729-024	--------	--------	--------
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg	----	**7.2**	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg	----	**7.2**	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg	----	**7.2**	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg	**220**	**220**	----	----	----
C29 - C36 Fraction	----	100	mg/kg	**240**	**150**	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg	**460**	**370**	----	----	----
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	>C10_C16	50	mg/kg	<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	**380**	**310**	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	**160**	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg	**540**	**310**	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg	<50	<50	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	<0.2	----	----	----
^ **Total Xylenes**	1330-20-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	**97.5**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	----	**110**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%	----	**97.8**	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	**95.5**	----	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH02_3.0-3.1	QC111	----	----	----
				[29-Aug-2015]	[29-Aug-2015]	----	----	----
				ES1529729-021	ES1529729-024	--------	--------	--------
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued								
Anthracene-d10	1719-06-8	0.5	%	----	**118**	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	----	**105**	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**97.1**	**105**	----	----	----
Toluene-D8	2037-26-5	0.2	%	**88.4**	**92.1**	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	**98.1**	**105**	----	----	----

Sub-Matrix: **SOIL**

EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH18_0.7-0.8 - [29-Aug-2015]	Pale brown clay soil with slag grains and glass debris
EA200: Description	BH20_0.5-0.6 - [29-Aug-2015]	Pale brown clay soil with grey rocks
EA200: Description	BH20_1.0-1.1 - [29-Aug-2015]	Pale brown sandy soil with plenty of slag debris
EA200: Description	BH03_0.2-0.3 - [29-Aug-2015]	Pale grey clay soil with brick and slag debris
EA200: Description	BH03_1.0-1.2 - [29-Aug-2015]	Mid brown clay soil with slag grains and several friable asbestos fibre bundles approx 5 x 2 x 2mm
EA200: Description	BH02_0.4-0.5 - [29-Aug-2015]	Pale brown sandy soil with grey rocks

QUALITY CONTROL REPORT

Work Order	: **ES1529729**	Page	: 1 of 8
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Barbara Hanna
Address	: LEVEL 21, 420 George Street SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60438840 BURROWS INDUSTRIAL	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 60438840	Date Samples Received	: 31-Aug-2015
C-O-C number	: ----	Date Analysis Commenced	: 03-Sep-2015
Sampler	: KATE PIGRAM	Issue Date	: 08-Sep-2015
Site	: ----	No. of samples received	: 24
Quote number	: ----	No. of samples analysed	: 12

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Quality Control Report contains the following information:

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

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

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

Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics

General Comments

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (QC Lot: 203955)									
ES1529729-002	BH18_0.7-0.8	EA055-103: Moisture Content (dried @ 103°C)	---	1	%	17.8	21.7	19.8	0% - 20%
ES1529729-024	QC111	EA055-103: Moisture Content (dried @ 103°C)	---	1	%	14.6	17.3	17.1	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 202940)									
ES1529722-010	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	3	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	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	25	11	78.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	12	12	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.00	No Limit
ES1529729-002	BH18_0.7-0.8	EG005T: Cadmium	7440-43-9	1	mg/kg	2	3	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	28	25	14.2	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	68	77	12.8	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	20	18	8.83	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	476	405	16.0	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	469	464	1.25	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	704	727	3.20	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 202942)									
ES1529729-020	BH02_2.0-2.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	33	28	14.3	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	28	39	31.7	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	59	49	17.1	0% - 50%
		EG005T: Copper	7440-50-8	5	mg/kg	783	782	0.00	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	1410	1660	16.5	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	815	956	15.9	0% - 20%
ES1529810-003	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	10	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	5	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	12	10	13.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	7	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	94	100	6.42	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 202941)									
ES1529729-002	BH18_0.7-0.8	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.1	<0.1	0.00	No Limit
ES1529729-020	BH02_2.0-2.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.6	0.9	41.4	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: 201988)									
ES1529729-002	BH18_0.7-0.8	EP075(SIM): Acenaphthene	83-32-9	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): Anthracene	120-12-7	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): Benzo(a)pyrene	50-32-8	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): 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(g.h.i)perylene	191-24-2	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): Chrysene	218-01-9	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): Fluoranthene	206-44-0	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): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Naphthalene	91-20-3	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): Pyrene	129-00-0	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
ES1530051-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	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): Anthracene	120-12-7	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): Benzo(a)pyrene	50-32-8	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): 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(g.h.i)perylene	191-24-2	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): Chrysene	218-01-9	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): Fluoranthene	206-44-0	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): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Naphthalene	91-20-3	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): Pyrene	129-00-0	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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 201980)									
ES1530051-004	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1530051-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 201989)									
ES1529729-002	BH18_0.7-0.8	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
ES1530051-001	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: 201980)									
ES1530051-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1530051-001	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: 201989)									
ES1529729-002	BH18_0.7-0.8	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	>C10_C16	50	mg/kg	<50	<50	0.00	No Limit
ES1530051-001	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	>C10_C16	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 201980)									
ES1530051-004	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	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: Toluene	108-88-3	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
ES1530051-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	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: Toluene	108-88-3	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 Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 202940)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	105	92	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	95.6	87	121
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	87.2	80	136
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	99.8	93	127
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	97.1	86	124
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	96.8	93	131
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	97.3	81	133
EG005T: Total Metals by ICP-AES (QCLot: 202942)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	102	92	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	97.2	87	121
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	88.4	80	136
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	101	93	127
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	97.1	86	124
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	99.5	93	131
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	97.5	81	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 202941)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	79.3	70	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 201988)								
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	98.3	79	123
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	91.2	77	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	101	79	123
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	94.2	73	121
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	92.0	76	122
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	92.0	70	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	97.6	72	114
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	98.7	77	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	92.4	81	123
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	87.2	72	113
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	97.0	79	123
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	93.8	77	123
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	90.2	71	113
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	102	80	124
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	99.6	79	123

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 201988) - continued								
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	97.3	79	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 201980)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	78.3	68	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 201989)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	103	71	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	108	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	107	64	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 201980)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	77.0	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 201989)								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	105	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	107	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	150 mg/kg	94.8	63	131
EP080: BTEXN (QCLot: 201980)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	81.4	62	116
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	81.2	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	85.4	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	88.6	62	138
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	89.2	60	120
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	82.5	62	128

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
EG005T: Total Metals by ICP-AES (QCLot: 202940)							
ES1529729-002	BH18_0.7-0.8	EG005T: Arsenic	7440-38-2	50 mg/kg	86.1	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	98.5	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	85.8	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	110	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	74.9	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	126	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	112	70	130
EG005T: Total Metals by ICP-AES (QCLot: 202942)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 202942) - continued							
ES1529729-020	BH02_2.0-2.1	EG005T: Arsenic	7440-38-2	50 mg/kg	98.5	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	93.4	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	129	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	93.8	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	118	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	111	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	121	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 202941)							
ES1529729-002	BH18_0.7-0.8	EG035T: Mercury	7439-97-6	5 mg/kg	93.3	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 201988)							
ES1530051-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	97.2	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	102	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 201980)							
ES1530051-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	89.2	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 201989)							
ES1530051-001	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	99.4	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	103	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	124	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 201980)							
ES1530051-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	85.4	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 201989)							
ES1530051-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	860 mg/kg	92.0	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	119	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	116	52	132
EP080: BTEXN (QCLot: 201980)							
ES1530051-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	79.0	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	83.8	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	85.3	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	85.5	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	89.6	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	81.1	70	130

QA/QC Compliance Assessment for DQO Reporting

Work Order	: **ES1529729**	Page	: 1 of 5
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Telephone	: +61 2 8784 8555
Project	: 60438840 BURROWS INDUSTRIAL	Date Samples Received	: 31-Aug-2015
Site	: ----	Issue Date	: 08-Sep-2015
Sampler	: KATE PIGRAM	No. of samples received	: 24
Order number	: 60438840	No. of samples analysed	: 12

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

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								
Soil Glass Jar - Unpreserved (EA055-103)								
BH18_0.7-0.8,	BH18_2.0-2.1,	**29-Aug-2015**	**----**	----	----	**04-Sep-2015**	12-Sep-2015	✓
BH20_0.5-0.6,	BH20_1.0-1.1,							
BH20_2.0-2.1,	BH03_0.2-0.3,							
BH03_1.0-1.2,	BH03_3.0-3.1,							
BH02_0.4-0.5,	BH02_2.0-2.1,							
BH02_3.0-3.1,	QC111							
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Snap Lock Bag - Separate bag received (EA200)								
BH18_0.7-0.8,	BH20_0.5-0.6,	**29-Aug-2015**	**----**	----	----	**04-Sep-2015**	25-Feb-2016	✓
BH20_1.0-1.1,	BH03_0.2-0.3,							
BH03_1.0-1.2,	BH02_0.4-0.5							
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
BH18_0.7-0.8,	BH18_2.0-2.1,	**29-Aug-2015**	**04-Sep-2015**	25-Feb-2016	✓	**04-Sep-2015**	25-Feb-2016	✓
BH20_0.5-0.6,	BH20_1.0-1.1,							
BH03_0.2-0.3,	BH03_1.0-1.2,							
BH03_3.0-3.1,	BH02_0.4-0.5,							
BH02_2.0-2.1,	QC111							
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
BH18_0.7-0.8,	BH18_2.0-2.1,	**29-Aug-2015**	**04-Sep-2015**	26-Sep-2015	✓	**07-Sep-2015**	26-Sep-2015	✓
BH20_0.5-0.6,	BH20_1.0-1.1,							
BH03_0.2-0.3,	BH03_1.0-1.2,							
BH03_3.0-3.1,	BH02_0.4-0.5,							
BH02_2.0-2.1,	QC111							

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP071)								
BH18_0.7-0.8,	BH20_2.0-2.1,	**29-Aug-2015**	**03-Sep-2015**	12-Sep-2015	✓	**04-Sep-2015**	13-Oct-2015	✓
BH03_1.0-1.2,	BH03_3.0-3.1,							
BH02_0.4-0.5,	BH02_3.0-3.1,							
QC111								
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH18_0.7-0.8,	BH18_2.0-2.1,	**29-Aug-2015**	**03-Sep-2015**	12-Sep-2015	✓	**04-Sep-2015**	13-Oct-2015	✓
BH20_0.5-0.6,	BH20_1.0-1.1,							
BH03_0.2-0.3,	BH03_1.0-1.2,							
BH02_0.4-0.5,	QC111							
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080)								
BH18_0.7-0.8,	BH20_2.0-2.1,	**29-Aug-2015**	**03-Sep-2015**	12-Sep-2015	✓	**04-Sep-2015**	12-Sep-2015	✓
BH03_1.0-1.2,	BH03_3.0-3.1,							
BH02_0.4-0.5,	BH02_3.0-3.1,							
QC111								

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	EA055-103	2	20	**10.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	16	**12.50**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	18	**11.11**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	2	16	**12.50**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	2	17	**11.76**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	16	**6.25**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	16	**6.25**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	16	**6.25**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	16	**6.25**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	16	**6.25**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	16	**6.25**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	In-house. A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
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	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve.

Preparation Methods	Method	Matrix	Method Descriptions
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	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 : **ES1529729**

Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Barbara Hanna
Address	: LEVEL 21, 420 George Street SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60438840 BURROWS INDUSTRIAL	Page	: 1 of 3
Order number	: 60438840	Quote number	: EB2015AECOMAU0580 (EN/004/15)
C-O-C number	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
Sampler	: KATE PIGRAM		

Dates

Date Samples Received	: 31-Aug-2015 3:45 PM	Issue Date	: 03-Sep-2015
Client Requested Due Date	: 07-Sep-2015	Scheduled Reporting Date	: **07-Sep-2015**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Intact.
No. of coolers/boxes	: ----	Temperature	: 18.2' C
Receipt Detail	:	No. of samples received / analysed	: 24 / 12

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **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 (14 days), Solid (60 days) from date of completion of work order.

Sample Container(s)/Preservation Non-Compliances

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

No sample container / preservation non-compliance exist.

Summary of Sample(s) and Requested Analysis

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

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	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
ES1529729-001	[29-Aug-2015]	BH18_0.25-0.35	☐						
ES1529729-002	[29-Aug-2015]	BH18_0.7-0.8		☐	☐				☐
ES1529729-003	[29-Aug-2015]	BH18_1.0-1.1	☐						
ES1529729-004	[29-Aug-2015]	BH18_2.0-2.1		☐		☐	☐		
ES1529729-005	[29-Aug-2015]	BH18_3.0-3.1	☐						
ES1529729-006	[29-Aug-2015]	BH18_3.8-3.9	☐						
ES1529729-007	[29-Aug-2015]	BH20_0.5-0.6		☐	☐	☐	☐		
ES1529729-008	[29-Aug-2015]	BH20_1.0-1.1		☐	☐	☐	☐		
ES1529729-009	[29-Aug-2015]	BH20_2.0-2.1		☐				☐	
ES1529729-010	[29-Aug-2015]	BH20_3.5-3.6	☐						
ES1529729-011	[29-Aug-2015]	BH03_0.2-0.3		☐	☐	☐	☐		
ES1529729-012	[29-Aug-2015]	BH03_0.5-0.6	☐						
ES1529729-013	[29-Aug-2015]	BH03_1.0-1.2		☐	☐				☐
ES1529729-014	[29-Aug-2015]	BH03_1.4-1.5	☐						
ES1529729-015	[29-Aug-2015]	BH03_2.0-2.1	☐						
ES1529729-016	[29-Aug-2015]	BH03_3.0-3.1		☐					
ES1529729-017	[29-Aug-2015]	BH03_3.8-3.9	☐						
ES1529729-018	[29-Aug-2015]	BH02_0.4-0.5		☐	☐				☐
ES1529729-019	[29-Aug-2015]	BH02_1.0-1.1	☐						
ES1529729-020	[29-Aug-2015]	BH02_2.0-2.1		☐			☐		
ES1529729-021	[29-Aug-2015]	BH02_3.0-3.1		☐				☐	
ES1529729-022	[29-Aug-2015]	BH02_3.8-3.9	☐						
ES1529729-023	[29-Aug-2015]	QC110	☐						
ES1529729-024	[29-Aug-2015]	QC111		☐					☐

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-05 TRH/BTEXN/8 Metals
ES1529729-016	[29-Aug-2015]	BH03_3.0-3.1	☐

Proactive Holding Time Report

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

Requested Deliverables

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
- A4 - AU Tax Invoice (INV)	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 - ESDAT (ESDAT)	Email	alex.latham@aecom.com
- EDI Format - HLAPro (HLAPro)	Email	alex.latham@aecom.com
- EDI Format - XTab (XTAB)	Email	alex.latham@aecom.com

AP_CUSTOMER SERVICE ANZ

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com

KATE PIGRAM

- *AU Certificate of Analysis - NATA (COA)	Email	kate.pigram@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.pigram@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.pigram@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.pigram@aecom.com
- A4 - AU Tax Invoice (INV)	Email	kate.pigram@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.pigram@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	kate.pigram@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.pigram@aecom.com
- EDI Format - HLAPro (HLAPro)	Email	kate.pigram@aecom.com
- EDI Format - XTab (XTAB)	Email	kate.pigram@aecom.com

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Chain of Custody

AECOM - Sydney
Level 21, 420 George Street,
Sydney, NSW 2000

Tel: (02) 8934 0000
Fax: (02) 8934 0001
E-mail: [illegible]
Kate.Pigram@aecom.com; [illegible]
Alex. [illegible] @aecom.com

Laboratory Details
Lab. Name: ALS Sydney
Lab. Address:
Contact Name:
Lab. Ref:

Sampled By: Kate Pigram [illegible]
AECOM Project No: [illegible] 60[illegible]

Specifications:

1. Urgent TAT required? (please circle: 24hr 48hr ____ 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 5.1.12
5. Special storage requirements? (details:
6. Staff Quality Partnership
7. Report Format: Fax Hardcopy Email

Lab ID	Sample ID	Sampling Date	Matrix	Preservation	Container	Analyses
1	BH18_0.25-0.35	29/8/15	X	X	[illegible]	
2	BH18_0.7-0.8	↓				✓ ✓ ✓ ✓ X
3	BH18_1.0-1.1					
4	BH18_2.0-2.1					✓ ✓
5	BH18_3.0-3.1					
6	BH18_3.8-3.9				[illegible]	
7	BH20_0.5-0.6				[illegible]	✓ ✓
8	BH20_1.0-1.1					✓ ✓ ✓
9	BH20_2.0-2.1					
10	BH20_3.5-3.6					
11	BH03_0.2-0.3					
12	BH03_0.5-0.6	↓	↓			

Metals: As Cd Cr Cu Ni Pb Zn Hg

Relinquished by: [illegible] Pigram
Received by:

Environmental Division
Sydney
Work Order Reference
ES1529729

Telephone : + 61-2-8784 8555

Page 2 of 2

Chain of Custody

AECOM – Sydney
Level 21, 420 George Street,
Sydney, NSW 2000

Tel: (02) 8934 0000
Fax: (02) 8934 0001
E-mail: Clayton.Cooper@aecom.com
Kate.Pigram@aecom.com; Jesse.Byrne@aecom.com
Alex.Latham@aecom.com

Laboratory Details
Lab. Name: ALS Sydney
Lab. Address:
Contact Name:
Lab. Ref:

Sampled By: Kate Pigram
AECOM Project No: 60558890

Specifications:

1. Urgent TAT required? (please circle: 24hr 48hr ______ days)
2. Fast TAT Guarantee Required?
3. Is any sediment layer present in waters to be excluded from extractions?
4. Is asbestos material removed from samples to be reported as per NEPM 5.1.1?
5. Special storage requirements? (details:
6. Shell Quality Partnership:
7. Report Format: Fax Hardcopy Email

Lab. ID	Sample ID	Sampling Date	Matrix: Soil
13	BH03_1.0-1.2	29/8/15	X
14	BH03_1.4-1.5	↓	↓
15	BH03_2.0-2.1	↓	↓
16	BH03_3.0-3.1	↓	↓
17	BH03_3.8-3.9	↓	↓
18	BH02_0.4-0.5	↓	↓
19	BH02_1.0-1.1	↓	↓
20	BH02_2.0-2.1	↓	↓
21	BH02_3.0-3.1	↓	↓
22	BH02_3.8-3.9	↓	↓
23	QC110	↓	↓
24	QC111	↓	↓

Preservation: Ice – X (sample 13, arrowed down to QC111)

[illegible] As Cd Cr Cu Ni Pb Zn Hg

[illegible] by: Kate Pigram
Signed:

Chain of Custody

AECOM

AECOM - Sydney
Level 21, 420 George Street,
Sydney, NSW 2000

Tel: (02) 8934 0000
Fax: (02) 8934 0001
E-mail: ~~Clayton.Cowper@aecom.com~~; Kate.Pigram@aecom.com; ~~Jess.Byrne@aecom.com~~
Alex.Latham@aecom.com

Sampled By: Kate Pigram ~~& Jess Byrne~~
AECOM Project No: ~~[illegible]~~ 60438840

Laboratory Details
Lab. Name: ALS Sydney
Lab. Address:
Contact Name:
Lab. Ref:
Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: EN/004/15
Project Name: ~~[illegible]~~ BURROWS INDUSTRIAL PO No.

Specifications: Yes (tick)

1. Urgent TAT required? (please circle: 24hr 48hr ______ 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: ______)
6. Shell Quality Partnership:
7. Report Format: Fax Hardcopy Email:

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	other	Preservation: filt'ed	acid	ice	other	Container (No. & type)	Metals (M8)	TRH (C6-C40), F1 & F2, BTEX	PAHs	ASBESTOS (P/ND) / OCP, OPP, PCB	HOLD
	BH18_0.25-0.35	29/8/15	X					X		1x jar 1x bag					✓
	BH18_0.7-0.8	↓	↓					↓		↓	✓	✓	✓	✓	
	BH18_1.0-1.1														✓
	BH18_2.0-2.1										✓		✓		
	BH18_3.0-3.1														✓
	BH18_3.8-3.9									1x jar					✓
	BH20_0.5-0.6									1x jar 1x bag	✓		✓	✓	
	BH20_1.0-1.1									↓	✓		✓	✓	
	BH20_2.0-2.1											✓			
	BH20_3.5-3.6									1x jar					✓
	BH03_0.2-0.3									1x jar 1x bag	✓		✓	✓	
	BH03_0.5-0.6	↓	↓					↓		↓					✓

* Metals Required (Delete elements not required): As Cd Cr Cu Ni Pb Zn Hg

Comments: Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Mercury Zinc

Lab Report No. Entry ID

Relinquished by: Kate Pigram	Signed:	Date: 31/8/15	
Recieved by:	Signed:	Date:	
Relinquished by:	Signed:	Date:	
Recieved by:	Signed:	Date:	

Printed copies of this document are uncontrolled

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AECOM

Chain of Custody

AECOM - Sydney
Level 21, 420 George Street,
Sydney, NSW 2000

Tel: (02) 8934 0000
Fax: (02) 8934 0001
E-mail: ~~Clayton.Cowper@aecom.com;~~ Kate.Pigram@aecom.com; ~~Jess.Byrne@aecom.com~~ Alex.Latham@aecom.com

Laboratory Details
Lab. Name: ALS Sydney
Lab. Address:
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: EN/004/15

Sampled By: Kate Pigram ~~& Jess Byrne~~
AECOM Project No: ~~[illegible]~~ 60438840
Project Name: ~~Exide~~ [illegible] INDUSTRIAL
PO No.

Specifications: Yes (tick)

1. Urgent TAT required? (please circle: 24hr 48hr ______ 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:)
6. Shell Quality Partnership:
7. Report Format: Fax Hardcopy Email

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	other	Preservation: filt'ed	acid	ice	other	Container (No. & type)	Metals (M8)	TRH (C6-C40), F1 & F2, BTEXN	PAHs	Asbestos (D/ND)	OCP, OPP, PCB	HOLD	[illegible] (crossed out)	Other
	BH03_1.0-1.2	29/8/15	X					X		1x jar 1x bag	✓	✓	✓	✓				
	BH03_1.4-1.5	↓	↓					↓		↓						✓		
	BH03_2.0-2.1	↓	↓					↓		↓						✓		
	BH03_3.0-3.1	↓	↓					↓		↓	✓	✓						
	BH03_3.8-3.9	↓	↓					↓		1x jar						✓		
	BH02_0.4-0.5	↓	↓					↓		1x jar 1x bag	✓	✓	✓	✓				
	BH02_1.0-1.1	↓	↓					↓		↓						✓	X	
	BH02_2.0-2.1	↓	↓					↓		↓	✓							
	BH02_3.0-3.1	↓	↓					↓		↓		✓						
	BH02_3.8-3.9	↓	↓					↓		1x jar						✓	X	
	QC110	↓	↓					↓		↓						✓		
	QC111	↓	↓					↓		↓	✓	✓	✓					

*Metals Required (Delete elements not required): As Cd Cr Cu Ni Pb Zn Hg

Comments: Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Mercury Zinc

Relinquished by: Kate Pigram Signed: Date: 31/8/5 Relinquished by: Signed: Date:
Recieved by: Signed: Date: Recieved by: Signed: Date:

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1529728**	Page	: 1 of 12
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Barbara Hanna
Address	: LEVEL 21, 420 George Street SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60438840/1.1 BURROWS INDUSTRIAL	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 60438840/1.1	Date Samples Received	: 01-Sep-2015 12:10
C-O-C number	: ----	Date Analysis Commenced	: 03-Sep-2015
Sampler	: KATE PIGRAM	Issue Date	: 08-Sep-2015 16:39
Site	: ----		
		No. of samples received	: 11
Quote number	: ----	No. of samples analysed	: 10

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

1006

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

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

Pabi Subba	Senior Organic Chemist	Sydney Organics
Raymond Commodore	Instrument Chemist	Sydney Inorganics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos

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

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

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

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

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

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

- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- EA200 Legend
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Ch' Chrysotile (white asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- 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: 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
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) 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.

Sub-Matrix: SOIL (Matrix: SOIL)				SS01	SS02	----	----	----
				[29-Aug-2015]	[29-Aug-2015]	----	----	----
				ES1529728-008	ES1529728-009	--------	--------	--------
				Result	Result	Result	Result	Result
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**Yes**	**Yes + Trace**	----	----	----
Asbestos Type	1332-21-4	-	--	**Ch + Am**	**Ch + Cr**	----	----	----
Sample weight (dry)	----	0.01	g	**169**	**381**	----	----	----
APPROVED IDENTIFIER:	----	-	--	**S.SPOONER**	**S.SPOONER**	----	----	----

1008

Sub-Matrix: SOLID (Matrix: SOLID)				SS04-FRAG	----	----	----	----
				[29-Aug-2015]	----	----	----	----
				ES1529728-011	--------	--------	--------	--------
				Result	Result	Result	Result	Result
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	**Yes**	----	----	----	----
Asbestos Type	1332-21-4	-	--	**Ch + Am**	----	----	----	----
Sample weight (dry)	----	0.01	g	**42.3**	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	**S.SPOONER**	----	----	----	----

1009

Sub-Matrix: WATER
(Matrix: WATER)

				MW21	MW19	MW16	MW17	MW01
				[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]
				ES1529728-001	ES1529728-002	ES1529728-003	ES1529728-004	ES1529728-005
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	**0.001**	**0.009**	**0.008**	**0.009**	**0.006**
Cadmium	7440-43-9	0.0001	mg/L	**0.0002**	**0.0061**	<0.0001	**0.0002**	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	**0.001**	**0.153**	**0.002**	**0.002**	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001	**0.009**	**0.004**	**0.004**	<0.001
Nickel	7440-02-0	0.001	mg/L	**0.004**	**0.128**	**0.007**	**0.026**	**0.003**
Zinc	7440-66-6	0.005	mg/L	**0.066**	**4.18**	**0.291**	**0.889**	**0.092**
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E(SIM): Halogenated Aliphatic Compounds								
Vinyl chloride	75-01-4	1	µg/L	<1	<1	<1	<1	<1
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5

Sub-Matrix: WATER (Matrix: WATER)				MW21	MW19	MW16	MW17	MW01
				[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]
				ES1529728-001	ES1529728-002	ES1529728-003	ES1529728-004	ES1529728-005
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1	µg/L	**1.8**	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1	µg/L	**1.9**	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1	µg/L	**1.7**	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0

Sub-Matrix: WATER (Matrix: WATER)				MW21	MW19	MW16	MW17	MW01
				[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]
				ES1529728-001	ES1529728-002	ES1529728-003	ES1529728-004	ES1529728-005
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Pyrene	129-00-0	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	**5.4**	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	**160**	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	**150**	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	**310**	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	**170**	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	**120**	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	**290**	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	**160**	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1

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

				MW21	MW19	MW16	MW17	MW01
				[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]
				ES1529728-001	ES1529728-002	ES1529728-003	ES1529728-004	ES1529728-005
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Naphthalene	91-20-3	5	µg/L	**8**	<5	<5	<5	<5
EP074S(SIM) : VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	50	%	**85.8**	**104**	**88.6**	**95.3**	**98.1**
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	**108**	**114**	**101**	**98.8**	**107**
Toluene-D8	2037-26-5	5	%	**122**	**123**	**107**	**103**	**116**
4-Bromofluorobenzene	460-00-4	5	%	**107**	**109**	**93.9**	**90.9**	**100**
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1	%	**21.0**	**19.2**	**19.0**	**17.9**	**17.9**
2-Chlorophenol-D4	93951-73-6	1	%	**44.2**	**44.6**	**44.2**	**42.0**	**44.2**
2.4.6-Tribromophenol	118-79-6	1	%	**48.0**	**44.0**	**33.3**	**41.3**	**34.8**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1	%	**66.6**	**68.4**	**59.3**	**59.9**	**62.4**
Anthracene-d10	1719-06-8	1	%	**54.1**	**84.6**	**78.9**	**72.1**	**79.2**
4-Terphenyl-d14	1718-51-0	1	%	**73.1**	**71.9**	**69.3**	**68.9**	**65.6**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**111**	**118**	**104**	**102**	**111**
Toluene-D8	2037-26-5	2	%	**99.6**	**100**	**87.6**	**83.9**	**94.7**
4-Bromofluorobenzene	460-00-4	2	%	**119**	**120**	**104**	**101**	**111**

Sub-Matrix: WATER (Matrix: WATER)				QC201	TB	----	----	----
				[31-Aug-2015]	[31-Aug-2015]	----	----	----
				ES1529728-006	ES1529728-007	--------	--------	--------
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	----	----	----	----	----
Copper	7440-50-8	0.001	mg/L	----	----	----	----	----
Lead	7439-92-1	0.001	mg/L	----	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	----	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	----	----	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	----	----	----	----	----
1.2-Dichloropropane	78-87-5	5	µg/L	----	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	----	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	----	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	----	----	----	----	----
EP074E(SIM): Halogenated Aliphatic Compounds								
Vinyl chloride	75-01-4	1	µg/L	----	----	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	----	----	----	----	----
Chloromethane	74-87-3	50	µg/L	----	----	----	----	----
Bromomethane	74-83-9	50	µg/L	----	----	----	----	----
Chloroethane	75-00-3	50	µg/L	----	----	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	----	----	----	----	----
1.1-Dichloroethene	75-35-4	5	µg/L	----	----	----	----	----
Iodomethane	74-88-4	5	µg/L	----	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L	----	----	----	----	----
1.1-Dichloroethane	75-34-3	5	µg/L	----	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	----	----	----	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	----	----	----	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L	----	----	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	----	----	----	----	----
1.2-Dichloroethane	107-06-2	5	µg/L	----	----	----	----	----
Trichloroethene	79-01-6	5	µg/L	----	----	----	----	----
Dibromomethane	74-95-3	5	µg/L	----	----	----	----	----

Sub-Matrix: WATER (Matrix: WATER)				QC201	TB	----	----	----
				[31-Aug-2015]	[31-Aug-2015]	----	----	----
				ES1529728-006	ES1529728-007	--------	--------	--------
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1.2-Trichloroethane	79-00-5	5	µg/L	----	----	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L	----	----	----	----	----
Tetrachloroethene	127-18-4	5	µg/L	----	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	----	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	----	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	----	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	----	----	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	----	----	----	----	----
Pentachloroethane	76-01-7	5	µg/L	----	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	----	----	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	----	----	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	----	----	----	----	----
Bromobenzene	108-86-1	5	µg/L	----	----	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	----	----	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	----	----	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	----	----	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	----	----	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	----	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	----	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	----	----	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	----	----	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	----	----	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	----	----	----	----	----
Bromoform	75-25-2	5	µg/L	----	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1	µg/L	----	----	----	----	----
Acenaphthylene	208-96-8	1	µg/L	----	----	----	----	----
Acenaphthene	83-32-9	1	µg/L	----	----	----	----	----
Fluorene	86-73-7	1	µg/L	----	----	----	----	----
Phenanthrene	85-01-8	1	µg/L	----	----	----	----	----
Anthracene	120-12-7	1	µg/L	----	----	----	----	----
Fluoranthene	206-44-0	1	µg/L	----	----	----	----	----

Sub-Matrix: WATER (Matrix: WATER)				QC201	TB	----	----	----
				[31-Aug-2015]	[31-Aug-2015]	----	----	----
				ES1529728-006	ES1529728-007	--------	--------	--------
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Pyrene	129-00-0	1	µg/L	----	----	----	----	----
Benz(a)anthracene	56-55-3	1	µg/L	----	----	----	----	----
Chrysene	218-01-9	1	µg/L	----	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	----	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1	µg/L	----	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	----	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1	µg/L	----	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1	µg/L	----	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	----	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	----	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L	<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	----	----	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	----	----	----
Toluene	108-88-3	2	µg/L	<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	<1	----	----	----

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

				QC201	TB	----	----	----
				[31-Aug-2015]	[31-Aug-2015]	----	----	----
				ES1529728-006	**ES1529728-007**	--------	--------	--------
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Naphthalene	91-20-3	5	µg/L	<5	<5	----	----	----
EP074S(SIM) : VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	50	%	----	----	----	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	----	----	----	----	----
Toluene-D8	2037-26-5	5	%	----	----	----	----	----
4-Bromofluorobenzene	460-00-4	5	%	----	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1	%	----	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1	%	----	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1	%	----	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1	%	----	----	----	----	----
Anthracene-d10	1719-06-8	1	%	----	----	----	----	----
4-Terphenyl-d14	1718-51-0	1	%	----	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**108**	**110**	----	----	----
Toluene-D8	2037-26-5	2	%	**94.4**	**86.2**	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	**108**	**107**	----	----	----

Sub-Matrix: **SOIL**

EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	SS01 - [29-Aug-2015]	Dark brown clay soil with two pieces of friable asbestos fibre board approx 4 x 3 x 2 mm as well as several loose bundles of friable asbestos fibres approx 2 x 1 x 0.5 mm.
EA200: Description	SS02 - [29-Aug-2015]	Dark brown clay soil with four pieces of bonded asbestos cement sheeting approx 40 x 40 x 5 mm as well as several pieces of friable asbestos cement sheeting approx 7 x 6 x 4 mm plus several loose bundles of friable asbestos fibres approx 2 x 1 x 0.5 mm.

Sub-Matrix: **SOLID**

EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples		
EA200: Description	SS04-FRAG - [29-Aug-2015]	Five pieces of bonded asbestos cement sheeting approx 50 x 30 x 5 mm.

QUALITY CONTROL REPORT

Work Order	: **ES1529728**	Page	: 1 of 8
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Barbara Hanna
Address	: LEVEL 21, 420 George Street SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60438840/1.1 BURROWS INDUSTRIAL	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 60438840/1.1	Date Samples Received	: 01-Sep-2015
C-O-C number	: ----	Date Analysis Commenced	: 03-Sep-2015
Sampler	: KATE PIGRAM	Issue Date	: 08-Sep-2015
Site	: ----	No. of samples received	: 11
Quote number	: ----	No. of samples analysed	: 10

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Quality Control Report contains the following information:

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

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

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

Pabi Subba	Senior Organic Chemist	Sydney Organics
Raymond Commodore	Instrument Chemist	Sydney Inorganics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos

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: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 202036)									
ES1529728-001	MW21	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0002	<0.0001	66.9	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.066	0.071	8.28	0% - 50%
EG035F: Dissolved Mercury by FIMS (QC Lot: 202037)									
ES1529728-002	MW19	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP074D: Fumigants (QC Lot: 203729)									
ES1529728-001	MW21	EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
EP074E(SIM): Halogenated Aliphatic Compounds (QC Lot: 203730)									
ES1529728-001	MW21	EP074E(SIM): Vinyl chloride	75-01-4	1	µg/L	<1	<1	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 203729)									
ES1529728-001	MW21	EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	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 (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 203729) - continued									
ES1529728-001	MW21	EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 203729)									
ES1529728-001	MW21	EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 203729)									
ES1529728-001	MW21	EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 203728)									
ES1529728-001	MW21	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 203728)									
ES1529728-001	MW21	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 203728)									
ES1529728-001	MW21	EP080: Benzene	71-43-2	1	µg/L	<1	<1	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: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	8	8	0.00	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 202036)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	90.8	85	115
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.2	85	115
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	92.3	85	115
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.3	85	115
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	89.4	85	115
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.1	85	115
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.0	85	115
EG035F: Dissolved Mercury by FIMS (QCLot: 202037)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	97.2	78	114
EP074D: Fumigants (QCLot: 203729)								
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	90.6	69	117
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	91.4	76	120
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	90.6	61	119
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	113	62	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	92.4	61	119
EP074E(SIM): Halogenated Aliphatic Compounds (QCLot: 203730)								
EP074E(SIM): Vinyl chloride	75-01-4	1	µg/L	<1	10 µg/L	114	67	131
EP074E: Halogenated Aliphatic Compounds (QCLot: 203729)								
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	95.1	66	114
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	84.3	61	119
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	95.2	70	124
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	102	75	123
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	91.9	75	119
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	93.9	69	123
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	90.2	73	119
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	92.2	74	128
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	102	66	136
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	89.0	78	122
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	96.7	79	121
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	89.7	56	140
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	91.1	63	121
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	107	63	135
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	69.7	67	130
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	92.0	77	117

Sub-Matrix: **WATER**

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
EP074E: Halogenated Aliphatic Compounds (QCLot: 203729) - continued								
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	76.9	71	128
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	91.6	74	118
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	72.1	61	138
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	91.5	58	132
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	76.3	70	128
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	111	72	126
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	79.4	72	124
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	93.6	71	119
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	76.3	60	120
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	87.9	74	120
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	90.1	65	131
EP074F: Halogenated Aromatic Compounds (QCLot: 203729)								
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	86.6	67	125
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	87.7	60	126
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	87.9	77	117
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	89.6	74	120
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	89.8	72	120
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	90.8	71	121
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	92.1	71	121
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	90.8	76	116
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	90.8	80	118
EP074G: Trihalomethanes (QCLot: 203729)								
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	92.1	64	118
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	102	74	126
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	94.5	76	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	102	65	115
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 202083)								
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	78.6	62	113
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	84.9	64	114
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	101	64	116
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	85.2	64	117
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	97.8	63	117
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	90.6	62	119
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	100	59	118
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	93.7	62	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	102	63	116
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	100	61	117

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
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 202083) - continued								
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	101	64	118
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	85.4	64	115
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	100	60	118
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	66.6	59	119
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	88.1	63	116
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	109	63	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 202084)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	95.2	59	129
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	96.6	71	131
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	92.8	62	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 203728)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	88.6	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 202084)								
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	92.7	59	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	98.0	74	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	95.8	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 203728)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	94.2	75	127
EP080: BTEXN (QCLot: 203728)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	84.0	70	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	84.7	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	88.1	69	121
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	95.1	70	124
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	92.5	72	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	82.7	65	129

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 202036)							
ES1529728-002	MW19	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	106	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	105	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	99.2	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 202036) - continued							
ES1529728-002	MW19	EG020A-F: Copper	7440-50-8	0.2 mg/L	101	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	97.4	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	102	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	# Not Determined	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 202037)							
ES1529728-001	MW21	EG035F: Mercury	7439-97-6	0.01 mg/L	93.2	70	130
EP074E(SIM): Halogenated Aliphatic Compounds (QCLot: 203730)							
ES1529728-001	MW21	EP074E(SIM): Vinyl chloride	75-01-4	25 µg/L	113	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 203729)							
ES1529728-001	MW21	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	72.0	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	87.5	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 203729)							
ES1529728-001	MW21	EP074: Chlorobenzene	108-90-7	25 µg/L	94.8	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 203728)							
ES1529728-001	MW21	EP080: C6 - C9 Fraction	----	325 µg/L	102	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 203728)							
ES1529728-001	MW21	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	99.5	70	130
EP080: BTEXN (QCLot: 203728)							
ES1529728-001	MW21	EP080: Benzene	71-43-2	25 µg/L	84.0	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	101	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	104	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	110	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	109	70	130
		EP080: Toluene	108-88-3	25 µg/L	90.8	70	130

QA/QC Compliance Assessment for DQO Reporting

Work Order	: **ES1529728**	Page	: 1 of 5
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Telephone	: +61 2 8784 8555
Project	: 60438840/1.1 BURROWS INDUSTRIAL	Date Samples Received	: 01-Sep-2015
Site	: ----	Issue Date	: 08-Sep-2015
Sampler	: KATE PIGRAM	No. of samples received	: 11
Order number	: 60438840/1.1	No. of samples analysed	: 10

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.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **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

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG020F: Dissolved Metals by ICP-MS	ES1529728--002	MW19	**Zinc**	7440-66-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	9	0.00	10.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	0	10	0.00	10.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	9	0.00	5.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	0	10	0.00	5.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Analysis Holding Time Compliance

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
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Separate bag received (EA200)							
SS01, SS02	**29-Aug-2015**	**----**	----	----	**07-Sep-2015**	25-Feb-2016	✓

Matrix: **SOLID** 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
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples							
Snap Lock Bag - Separate bag received (EA200)							
SS04-FRAG	**29-Aug-2015**	**----**	----	----	**08-Sep-2015**	25-Feb-2016	✓

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
MW21, MW19, MW16, MW17, MW01	**31-Aug-2015**	**----**	----	----	**03-Sep-2015**	27-Feb-2016	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
MW21, MW19, MW16, MW17, MW01	**31-Aug-2015**	**----**	----	----	**07-Sep-2015**	28-Sep-2015	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
MW21, MW19, MW16, MW17, MW01, QC201	**31-Aug-2015**	**03-Sep-2015**	07-Sep-2015	✓	**07-Sep-2015**	13-Oct-2015	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074)							
MW21, MW19, MW16, MW17, MW01	**31-Aug-2015**	**05-Sep-2015**	14-Sep-2015	✓	**05-Sep-2015**	14-Sep-2015	✓
EP074E(SIM): Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074E(SIM))							
MW21, MW19, MW16, MW17, MW01	**31-Aug-2015**	**05-Sep-2015**	14-Sep-2015	✓	**05-Sep-2015**	14-Sep-2015	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
MW21, MW19, MW16, MW17, MW01	**31-Aug-2015**	**03-Sep-2015**	07-Sep-2015	✓	**07-Sep-2015**	13-Oct-2015	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
MW21, MW19, MW16, MW17, MW01, QC201, TB	**31-Aug-2015**	**05-Sep-2015**	14-Sep-2015	✓	**05-Sep-2015**	14-Sep-2015	✓

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: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	1	5	**20.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	5	**20.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	9	**0.00**	**10.00**	✗	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	0	10	**0.00**	**10.00**	✗	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	7	**14.29**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Vinyl Chloride Low level	EP074E(SIM)	1	5	**20.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	**20.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	**11.11**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	7	**14.29**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Vinyl Chloride Low level	EP074E(SIM)	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	**11.11**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	7	**14.29**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Vinyl Chloride Low level	EP074E(SIM)	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	9	**0.00**	**5.00**	✗	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	0	10	**0.00**	**5.00**	✗	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	7	**14.29**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Vinyl Chloride Low level	EP074E(SIM)	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
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 Identification in Bulk Solids	EA200	SOLID	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by 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	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Vinyl Chloride Low level	EP074E(SIM)	WATER	(USEPA SW 846 - 8260B, ALS QWI-ORG/EP074) Water samples are directly purged (ALSQWI-ORG/16) prior to analysis by Capillary GC/MS. Quantitation is achieved using internal standard and average response factor quantitation techniques against an established five point curve.
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES1529728**

Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Barbara Hanna
Address	: LEVEL 21, 420 George Street SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60438840/1.1 BURROWS INDUSTRIAL	Page	: 1 of 3
Order number	: 60438840/1.1	Quote number	: EB2015AECOMAU0580 (EN/004/15)
C-O-C number	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
Sampler	: KATE PIGRAM		

Dates

Date Samples Received	: 01-Sep-2015 12:10 PM	Issue Date	: 03-Sep-2015
Client Requested Due Date	: 08-Sep-2015	Scheduled Reporting Date	: **08-Sep-2015**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: ----	Temperature	: 4.2' C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 11 / 10

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample QC200 to be forwarded to Envirolab.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **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 (14 days), Solid (60 days) from date of completion of work order.

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA200 Asbestos Identification in Soils -
ES1529728-008	[29-Aug-2015]	SS01		☐
ES1529728-009	[29-Aug-2015]	SS02		☐
ES1529728-010	[29-Aug-2015]	SS03-FRAG	☐	
ES1529728-011	[29-Aug-2015]	SS04-FRAG		☐

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP074 Vinyl Chloride SIM VOC SIM Vinyl Chloride Only	WATER - EP074DEFG VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	WATER - W-04 TRH/BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-26 TRH/BTEXN/PAH/8 Metals
ES1529728-001	[31-Aug-2015]	MW21	☐	☐			☐
ES1529728-002	[31-Aug-2015]	MW19	☐	☐			☐
ES1529728-003	[31-Aug-2015]	MW16	☐	☐			☐
ES1529728-004	[31-Aug-2015]	MW17	☐	☐			☐
ES1529728-005	[31-Aug-2015]	MW01	☐	☐			☐
ES1529728-006	[31-Aug-2015]	QC201			☐		
ES1529728-007	[31-Aug-2015]	TB				☐	

Proactive Holding Time Report

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

Requested Deliverables

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
- A4 - AU Tax Invoice (INV)	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 - ESDAT (ESDAT)	Email	alex.latham@aecom.com
- EDI Format - HLAPro (HLAPro)	Email	alex.latham@aecom.com
- EDI Format - XTab (XTAB)	Email	alex.latham@aecom.com

AP_CUSTOMER SERVICE ANZ

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com

KATE PIGRAM

- *AU Certificate of Analysis - NATA (COA)	Email	kate.pigram@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.pigram@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.pigram@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.pigram@aecom.com
- A4 - AU Tax Invoice (INV)	Email	kate.pigram@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.pigram@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	kate.pigram@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.pigram@aecom.com
- EDI Format - HLAPro (HLAPro)	Email	kate.pigram@aecom.com
- EDI Format - XTab (XTAB)	Email	kate.pigram@aecom.com

Updated COC

Subcon / Forward Lab / Split WO
Lab / Analysis: NEWCASTLE
Organised By / Date: Asbestos · 8.9.11
Relinquished By / Date: ENVIROLAB
Connote / Courier: QC200
WO No: ES1529728
Attach. By PO / Internal Sheet

AECOM

Chain of Custody

AECOM - Sydney
Level 21, 420 George Street,
Sydney, NSW 2000

Tel: (02) 8934 0000
Fax: (02) 8934 0001
E-mail: Alex.Latham@aecom.com; Kate.Pigram@aecom.com;

Laboratory Details
Lab. Name: ALS Sydney
Lab. Address:
Contact Name:
Lab. Ref:

Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: EN/004/15

Sampled By: Kate Pigram
AECOM Project No: 60438840/1.1
Project Name: Burrows Industrial
PO No.

Specifications:

Specification	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr ______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: ______)	
6. Shell Quality Partnership:	
7. Report Format: Fax Hardcopy Email : ______	

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 (dissolved)	VHC	Vinyl Chloride - low level	Asbestos (D/ND)	Hold	Other: with separate COC
1	MW21	31/08/2015		X				X		2 x v; 1 x a; 1 x p	✓	✓	✓	✓	✓			
2	MW19	31/08/2015		X				X		2 x v; 1 x a; 1 x p	✓	✓	✓	✓	✓			
3	MW16	31/08/2015		X				X		2 x v; 1 x a; 1 x p	✓	✓	✓	✓	✓			
4	MW17	31/08/2015		X				X		2 x v; 1 x a; 1 x p	✓	✓	✓	✓	✓			
5	MW01	31/08/2015		X				X		2 x v; 1 x a; 1 x p	✓	✓	✓	✓	✓			
~~6~~	QC200	31/08/2015		X				X		2 x v; 1 x a; 1 x p	SEND TO ENVIROLAB							✓
6	QC201	31/08/2015		X				X		2 x v; 1 x a; 1 x p	✓							
7	TB	31/08/2015		X				X		1 x v	✓							
8	SS01	29/8/15	X							Bag						✓		
9	SS02	29/8/15	X							Bag.						✓		
10	SS03_Frag	29/8/15			X					Bag							✓	
11	SS04_Frag	29/8/15			X					Bag.						✓		

* Metals Required (Delete elements not required): As Cd Cr Cu Ni Pb Zn Hg

Comments: Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Mercury Zinc

Lab Report N

Relinquished by:	Signed:	Date:	Relinquished by:	Signed:
Recieved by: Frank	Signed: [signature]	Date: 1/9/15 1210	Recieved by:	Signed:

Environmental Division
Sydney
Work Order Reference
ES1529728

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BMS-PM-DV-F046

Revision: Jun 08

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CERTIFICATE OF ANALYSIS 133696

Client:
AECOM Australia Pty Ltd (Sydney)
PO Box Q410
QVB Post Office
Sydney
NSW 1230

Attention: Alex Latham, Kate Pigram

Sample log in details:

Your Reference:	**60438840/1.1**		
No. of samples:	1 Water		
Date samples received / completed instructions received	3/9/2015	/	3/9/2015

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	10/09/15	/	8/09/15
Date of Preliminary Report:	Not Issued		

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

VHC's in water		
Our Reference:	UNITS	133696-1
Your Reference	----------	QC200
Date Sampled	----------	31/08/2015
Type of sample		Water
Date extracted	-	03/09/2015
Date analysed	-	04/09/2015
Dichlorodifluoromethane	µg/L	<10
Chloromethane	µg/L	<10
Vinyl Chloride	µg/L	<0.3
Bromomethane	µg/L	<10
Chloroethane	µg/L	<10
Trichlorofluoromethane	µg/L	<10
1,1-Dichloroethene	µg/L	<1
Trans-1,2-dichloroethene	µg/L	<1
1,1-dichloroethane	µg/L	<1
Cis-1,2-dichloroethene	µg/L	<1
Bromochloromethane	µg/L	<1
Chloroform	µg/L	<1
2,2-dichloropropane	µg/L	<1
1,2-dichloroethane	µg/L	<1
1,1,1-trichloroethane	µg/L	<1
1,1-dichloropropene	µg/L	<1
Carbon tetrachloride	µg/L	<1
Dibromomethane	µg/L	<1
1,2-dichloropropane	µg/L	<1
Trichloroethene	µg/L	<1
Bromodichloromethane	µg/L	<1
trans-1,3-dichloropropene	µg/L	<1
cis-1,3-dichloropropene	µg/L	<1
1,1,2-trichloroethane	µg/L	<1
1,3-dichloropropane	µg/L	<1
Dibromochloromethane	µg/L	<1
1,2-dibromoethane	µg/L	<1
Tetrachloroethene	µg/L	<1
1,1,1,2-tetrachloroethane	µg/L	<1
Chlorobenzene	µg/L	<1
Bromoform	µg/L	<1
1,1,2,2-tetrachloroethane	µg/L	<1
1,2,3-trichloropropane	µg/L	<1
Bromobenzene	µg/L	<1
2-chlorotoluene	µg/L	<1
4-chlorotoluene	µg/L	<1
1,3-dichlorobenzene	µg/L	<1
1,4-dichlorobenzene	µg/L	<1
1,2-dichlorobenzene	µg/L	<1
1,2-dibromo-3-chloropropane	µg/L	<1

VHC's in water		
Our Reference:	UNITS	133696-1
Your Reference	----------	QC200
Date Sampled	----------	31/08/2015
Type of sample		Water
1,2,4-trichlorobenzene	µg/L	<1
Hexachlorobutadiene	µg/L	<1
1,2,3-trichlorobenzene	µg/L	<1
Surrogate Dibromofluoromethane	%	97
Surrogate toluene-d8	%	93
Surrogate 4-BFB	%	97

vTRH(C6-C10)/BTEXN in Water		
Our Reference:	UNITS	133696-1
Your Reference	----------	QC200
Date Sampled	----------	31/08/2015
Type of sample		Water
Date extracted	-	03/09/2015
Date analysed	-	04/09/2015
TRHC$_6$ - C$_9$	µg/L	<10
TRHC$_6$ - C$_{10}$	µg/L	<10
TRHC$_6$ - C$_{10}$ less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	101
Surrogate toluene-d8	%	93
Surrogate 4-BFB	%	97

svTRH (C10-C40) in Water		
Our Reference:	UNITS	133696-1
Your Reference	----------	QC200
Date Sampled	----------	31/08/2015
Type of sample		Water
Date extracted	-	04/09/2015
Date analysed	-	04/09/2015
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
TRH >C_{10} - C_{16}	µg/L	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Surrogate o-Terphenyl	%	84

PAHs in Water		
Our Reference:	UNITS	133696-1
Your Reference	----------	QC200
Date Sampled	----------	31/08/2015
Type of sample		Water
Date extracted	-	04/09/2015
Date analysed	-	04/09/2015
Naphthalene	µg/L	<1
Acenaphthylene	µg/L	<1
Acenaphthene	µg/L	<1
Fluorene	µg/L	<1
Phenanthrene	µg/L	<1
Anthracene	µg/L	<1
Fluoranthene	µg/L	<1
Pyrene	µg/L	<1
Benzo(a)anthracene	µg/L	<1
Chrysene	µg/L	<1
Benzo(b,j+k)fluoranthene	µg/L	<2
Benzo(a)pyrene	µg/L	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1
Dibenzo(a,h)anthracene	µg/L	<1
Benzo(g,h,i)perylene	µg/L	<1
Benzo(a)pyrene TEQ	µg/L	<5
Total +ve PAH's	µg/L	NIL (+)VE
Surrogate p-Terphenyl-d14	%	105

HM in water - dissolved		
Our Reference:	UNITS	133696-1
Your Reference	----------	QC200
Date Sampled	----------	31/08/2015
Type of sample		Water
Date prepared	-	04/09/2015
Date analysed	-	04/09/2015
Arsenic-Dissolved	µg/L	5
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	<1
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	2
Zinc-Dissolved	µg/L	80

Method ID	Methodology Summary
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.

QUALITY CONTROL VHC's in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			03/09/2015	[NT]	[NT]	LCS-W2	03/09/2015
Date analysed	-			04/09/2015	[NT]	[NT]	LCS-W2	04/09/2015
Dichlorodifluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Chloromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	µg/L	0.3	Org-013	<0.3	[NT]	[NT]	[NR]	[NR]
Bromomethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Chloroethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W2	91%
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Chloroform	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W2	91%
2,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W2	91%
1,1,1-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W2	90%
1,1-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Carbon tetrachloride	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Dibromomethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Trichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W2	86%
Bromodichloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W2	88%
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Dibromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W2	83%
1,2-dibromoethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Tetrachloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W2	88%
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Chlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromoform	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL VHC's in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Hexachlorobutadiene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-013	95	[NT]	[NT]	LCS-W2	88%
Surrogate toluene-d8	%		Org-013	94	[NT]	[NT]	LCS-W2	98%
Surrogate 4-BFB	%		Org-013	95	[NT]	[NT]	LCS-W2	88%
QUALITY CONTROL vTRH(C6-C10)/BTEXN in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			03/09/2015	[NT]	[NT]	LCS-W2	03/09/2015
Date analysed	-			04/09/2015	[NT]	[NT]	LCS-W2	04/09/2015
TRH C_6 - C_9	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W2	87%
TRH C_6 - C_{10}	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W2	87%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W2	89%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W2	89%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W2	85%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W2	86%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W2	87%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	101	[NT]	[NT]	LCS-W2	100%
Surrogate toluene-d8	%		Org-016	94	[NT]	[NT]	LCS-W2	98%
Surrogate 4-BFB	%		Org-016	95	[NT]	[NT]	LCS-W2	88%

QUALITY CONTROL svTRH (C10-C40) in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			04/09/2015	[NT]	[NT]	LCS-W1	04/09/2015
Date analysed	-			04/09/2015	[NT]	[NT]	LCS-W1	04/09/2015
TRH C_{10} - C_{14}	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	112%
TRH C_{15} - C_{28}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	95%
TRH C_{29} - C_{36}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	97%
TRH >C_{10} - C_{16}	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	112%
TRH >C_{16} - C_{34}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	95%
TRH >C_{34} - C_{40}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	97%
Surrogate o-Terphenyl	%		Org-003	86	[NT]	[NT]	LCS-W1	77%
QUALITY CONTROL PAHs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			04/09/2015	[NT]	[NT]	LCS-W1	04/09/2015
Date analysed	-			04/09/2015	[NT]	[NT]	LCS-W1	04/09/2015
Naphthalene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	80%
Acenaphthylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	78%
Phenanthrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	82%
Anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	80%
Pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	84%
Benzo(a)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	80%
Benzo(b,j+k) fluoranthene	µg/L	2	Org-012 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	92%
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	95	[NT]	[NT]	LCS-W1	90%

QUALITY CONTROL HM in water - dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			04/09/2015	[NT]	[NT]	LCS-W1	04/09/2015
Date analysed	-			04/09/2015	[NT]	[NT]	LCS-W1	04/09/2015
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	95%
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	[NT]	[NT]	LCS-W1	101%
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	96%
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	99%
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	105%
Mercury-Dissolved	µg/L	0.05	Metals-021 CV-AAS	<0.05	[NT]	[NT]	LCS-W1	96%
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	94%
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	96%

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client Details	
Client	AECOM Australia Pty Ltd (Sydney)
Attention	Alex Latham, Kate Pigram

Sample Login Details	
Your Reference	60438840/1.1
Envirolab Reference	133696
Date Sample Received	03/09/2015
Date Instructions Received	03/09/2015
Date Results Expected to be Reported	10/09/2015

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	1 Water
Turnaround Time Requested	Standard
Temperature on receipt (°C)	5.7
Cooling Method	Ice
Sampling Date Provided	YES

Comments
Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	Phone: 02 9910 6200
Fax: 02 9910 6201	Fax: 02 9910 6201
Email: ahie@envirolabservices.com.au	Email: jhurst@envirolabservices.com.au

Sample and Testing Details on following page

Envirolab Services Pty Ltd
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12 Ashley St Chatswood NSW 2067
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Sample Id	*VHC's in water*	*vTRH(C6-C10)/BTEXN in Water*	*svTRH (C10-C40) in Water*	*PAHs in Water*	*HM in water - dissolved*
QC200	✓	✓	✓	✓	✓

AECOM

Chain of Custody

AECOM - Sydney
Level 21, 420 George Street,
Sydney, NSW 2000
Tel: (02) 8934 0000
Fax: (02) 8934 0001
E-mail: Alex.Latham@aecom.com;
Kate.Pigram@aecom.com;

Laboratory Details

Lab. Name: ENVIROLAB
Lab. Address:
Contact Name:
Lab. Ref:
Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No:

Sampled By: Kate Pigram
AECOM Project No: 60438840/1.1
Project Name: Burrows Industrial
PO No.

Specifications:

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr _____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: _____)	
6. Shell Quality Partnership:	
7. Report Format: Fax Hardcopy Email : _____	

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 (dissolved)	VHC	low level vinyl chloride	Other
1.	QC200	31/08/2015		X				X		2 x v; 1 x a; 1 x p	X	X	X	X	X	

ENVIROLAB

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 133696
Date Received: 3/9/15
Time Received: 12:45
Received by: D.F
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

* Metals Required (Delete elements not required): As Cd Cr Cu Ni Pb Zn Hg

Comments: Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Mercury Zinc

Lab Report No:
Esky ID:

Relinquished by: K Pigram — Signed: — Date: 31/8/15
Recieved by: Daniel Ford - ELS — Signed: — Date: 3/9/15

Relinquished by: — Signed: — Date:
Recieved by: Daniel Ford — Signed: — Date:

1051

ES1529728

Envirolab Services Pty Ltd
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CERTIFICATE OF ANALYSIS 235771

Client Details

Client	AECOM Australia Pty Ltd (Sydney)
Attention	Alex Latham
Address	PO Box Q410, QVB Post Office, Sydney, NSW, 1230

Sample Details

Your Reference	**60623599_1.1, Burrows IE**
Number of Samples	3 Soil
Date samples received	31/01/2020
Date completed instructions received	31/01/2020

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	07/02/2020
Date of Issue	07/02/2020

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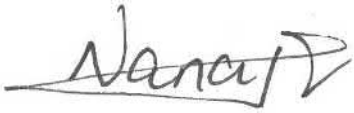
Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Josh Williams, Senior Chemist
Loren Bardwell, Senior Chemist

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil				
Our Reference		235771-1	235771-2	235771-3
Your Reference	UNITS	QC 105	QC 106	QC 102
Date Sampled		29/01/2020	29/01/2020	29/01/2020
Type of sample		Soil	Soil	Soil
Date extracted	-	04/02/2020	04/02/2020	04/02/2020
Date analysed	-	04/02/2020	04/02/2020	04/02/2020
TRH C_6 - C_9	mg/kg	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	87	83	75

svTRH (C10-C40) in Soil				
Our Reference	UNITS	235771-1	235771-2	235771-3
Your Reference		QC 105	QC 106	QC 102
Date Sampled		29/01/2020	29/01/2020	29/01/2020
Type of sample		Soil	Soil	Soil
Date extracted	-	03/02/2020	03/02/2020	03/02/2020
Date analysed	-	06/02/2020	06/02/2020	06/02/2020
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	120	<100
TRH C_{29} - C_{36}	mg/kg	<100	120	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	140	210	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	140	210	<50
Surrogate o-Terphenyl	%	79	84	70

PAHs in Soil				
Our Reference	UNITS	235771-1	235771-2	235771-3
Your Reference		QC 105	QC 106	QC 102
Date Sampled		29/01/2020	29/01/2020	29/01/2020
Type of sample		Soil	Soil	Soil
Date extracted	-	04/02/2020	04/02/2020	04/02/2020
Date analysed	-	04/02/2020	04/02/2020	04/02/2020
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.3	0.4	<0.1
Anthracene	mg/kg	<0.1	0.2	<0.1
Fluoranthene	mg/kg	0.3	0.7	<0.1
Pyrene	mg/kg	0.3	0.6	<0.1
Benzo(a)anthracene	mg/kg	0.2	0.5	<0.1
Chrysene	mg/kg	0.2	0.4	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.2	0.7	<0.2
Benzo(a)pyrene	mg/kg	0.1	0.5	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.2	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.4	<0.1
Total +ve PAH's	mg/kg	1.6	4.5	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	0.6	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	0.7	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	0.7	<0.5
Surrogate p-Terphenyl-d14	%	93	98	91

Acid Extractable metals in soil					
Our Reference		235771-1	235771-2	235771-3	235771-4
Your Reference	UNITS	QC 105	QC 106	QC 102	QC 105 - [TRIPLICATE]
Date Sampled		29/01/2020	29/01/2020	29/01/2020	29/01/2020
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	04/02/2020	04/02/2020	04/02/2020	04/02/2020
Date analysed	-	04/02/2020	04/02/2020	04/02/2020	04/02/2020
Arsenic	mg/kg	7	12	44	6
Cadmium	mg/kg	4.4	1	10	5.0
Chromium	mg/kg	22	16	260	20
Copper	mg/kg	530	110	42,000	540
Lead	mg/kg	260	330	4,500	240
Mercury	mg/kg	0.4	0.4	2.8	0.5
Nickel	mg/kg	170	17	230	150
Zinc	mg/kg	350	450	12,000	340

Moisture				
Our Reference		235771-1	235771-2	235771-3
Your Reference	UNITS	QC 105	QC 106	QC 102
Date Sampled		29/01/2020	29/01/2020	29/01/2020
Type of sample		Soil	Soil	Soil
Date prepared	-	03/02/2020	03/02/2020	03/02/2020
Date analysed	-	04/02/2020	04/02/2020	04/02/2020
Moisture	%	15	12	24

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-012/017	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-13	[NT]
Date extracted	-			04/02/2020	1	04/02/2020	04/02/2020		04/02/2020	[NT]
Date analysed	-			04/02/2020	1	04/02/2020	04/02/2020		04/02/2020	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	<25	1	<25	<25	0	122	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	1	<25	<25	0	122	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	1	<0.2	<0.2	0	117	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	1	<0.5	<0.5	0	119	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	1	<1	<1	0	125	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	1	<2	<2	0	124	[NT]
o-Xylene	mg/kg	1	Org-016	<1	1	<1	<1	0	125	[NT]
naphthalene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	93	1	87	82	6	98	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-12	[NT]
Date extracted	-			03/02/2020	1	03/02/2020	03/02/2020		03/02/2020	[NT]
Date analysed	-			06/02/2020	1	06/02/2020	06/02/2020		06/02/2020	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	1	<50	<50	0	85	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	1	<100	160	46	88	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	1	<100	230	79	108	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	1	<50	<50	0	85	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	1	140	360	88	88	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	1	<100	140	33	108	[NT]
Surrogate o-Terphenyl	%		Org-003	72	1	79	81	2	91	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	[NT]
Date extracted	-			04/02/2020	1	04/02/2020	04/02/2020		04/02/2020	[NT]
Date analysed	-			04/02/2020	1	04/02/2020	04/02/2020		04/02/2020	[NT]
Naphthalene	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	112	[NT]
Acenaphthylene	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	104	[NT]
Phenanthrene	mg/kg	0.1	Org-012/017	<0.1	1	0.3	0.2	40	98	[NT]
Anthracene	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012/017	<0.1	1	0.3	0.3	0	106	[NT]
Pyrene	mg/kg	0.1	Org-012/017	<0.1	1	0.3	0.3	0	112	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012/017	<0.1	1	0.2	0.2	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012/017	<0.1	1	0.2	0.2	0	84	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012/017	<0.2	1	0.2	0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012/017	<0.05	1	0.1	0.1	0	128	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012/017	91	1	93	92	1	104	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-13	[NT]
Date prepared	-			04/02/2020	1	04/02/2020	04/02/2020		04/02/2020	[NT]
Date analysed	-			04/02/2020	1	04/02/2020	04/02/2020		04/02/2020	[NT]
Arsenic	mg/kg	4	Metals-020	<4	1	7	7	0	112	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	4.4	4.9	11	109	[NT]
Chromium	mg/kg	1	Metals-020	<1	1	22	28	24	114	[NT]
Copper	mg/kg	1	Metals-020	<1	1	530	660	22	111	[NT]
Lead	mg/kg	1	Metals-020	<1	1	260	490	61	120	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	1	0.4	0.5	22	90	[NT]
Nickel	mg/kg	1	Metals-020	<1	1	170	150	12	113	[NT]
Zinc	mg/kg	1	Metals-020	<1	1	350	380	8	118	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 235771-1 for Pb. Therefore a triplicate result has been issued as laboratory sample number 235771-4.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	AECOM Australia Pty Ltd (Sydney)
Attention	Rebekah Panozzo, Kurtis Wathen

Sample Login Details

Your reference	60623599_1.1, Burrows IE
Envirolab Reference	235771
Date Sample Received	31/01/2020
Date Instructions Received	31/01/2020
Date Results Expected to be Reported	07/02/2020

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	3 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	17.0
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

1067

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil
QC 105	✓	✓	✓	✓
QC 106	✓	✓	✓	✓
QC 102	✓	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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	water	other	Preservation: filt'ed	acid	ice	other	Container (No. & type)	TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Hold	Other
1	QC105	29/1/20	✓					✓		Jar	✓	✓	✓			
2	QC106	29/1/20	✓					✓		Jar	✓	✓	✓			
1069 3	QC102	29/1/20	✓					✓		Jar	✓	✓	✓			

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 285771
Date Received: 31/1/20
Time Received: 1519
Received By: JD
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

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

Comments:

Lab Report No. Esky ID

Relinquished by: R. Panozzo	Signed:	Date: 29/1/2020	Relinquished by:	Signed:	Date:
Recieved by: Jason Day	Signed:	Date: 31/1/20 1519	Recieved by:	Signed:	Date:

Field_Worksheet_FORM025_Dec04

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** Tel: 8784 8515
Lab Address: 277 Woodpark Rd, Smithfield Fax:
Contact Name: Brenda Hong Preliminary Report by:
Lab. Ref: 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: 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	28/11/19	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: Envirolab 29/11/19
Relinquished By / Date:
Connote / Courier:
WO No:
Attached By PO / Internal Sheet:

send requested soil QC samples to Envirolab with crushed ice please

Environmental Division
Sydney
Work Order Reference
ES2002766

Telephone : +61-2-8784 8555

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

Comments:

Lab Report No. Esky ID

Relinquished by: K. Wathen	Signed:	Date: 29.11.19	Relinquished by:	Signed:	Date:
Recieved by:	Signed:	Date:	Recieved by:	Signed: 29/11/19	Date: 3:45pm

Field_Worksheet_FORM025_Dec04

ES5771 8DAY

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: Kutis 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: 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)
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_1.3-1.8									J						

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: RP — Date: 29/11

Recieved by: — Signed: — Date:

Relinquished by: — Signed: — Date:

Recieved by: JAZ — Signed: 29/11/2 3:40 — Date:

Field_Worksheet_FORM025_Dec04

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 236880

Client Details

Client	AECOM Australia Pty Ltd (Sydney)
Attention	Alex Latham
Address	PO Box Q410, QVB Post Office, Sydney, NSW, 1230

Sample Details

Your Reference	**60623599_1.0**
Number of Samples	1 water
Date samples received	17/02/2020
Date completed instructions received	17/02/2020

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	24/02/2020
Date of Issue	24/02/2020

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Jaimie Loa-Kum-Cheung, Metals Supervisor
Josh Williams, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager

VHC's in water		
Our Reference		236880-1
Your Reference	UNITS	QC306_200212
Date Sampled		12/02/2020
Type of sample		water
Date extracted	-	20/02/2020
Date analysed	-	20/02/2020
Dichlorodifluoromethane	µg/L	<10
Chloromethane	µg/L	<10
Vinyl Chloride	µg/L	<0.3
Bromomethane	µg/L	<10
Chloroethane	µg/L	<10
Trichlorofluoromethane	µg/L	<10
1,1-Dichloroethene	µg/L	<1
Trans-1,2-dichloroethene	µg/L	<1
1,1-dichloroethane	µg/L	<1
Cis-1,2-dichloroethene	µg/L	<1
Bromochloromethane	µg/L	<1
Chloroform	µg/L	<1
2,2-dichloropropane	µg/L	<1
1,2-dichloroethane	µg/L	<1
1,1,1-trichloroethane	µg/L	<1
1,1-dichloropropene	µg/L	<1
Carbon tetrachloride	µg/L	<1
Dibromomethane	µg/L	<1
1,2-dichloropropane	µg/L	<1
Trichloroethene	µg/L	<1
Bromodichloromethane	µg/L	<1
trans-1,3-dichloropropene	µg/L	<1
cis-1,3-dichloropropene	µg/L	<1
1,1,2-trichloroethane	µg/L	<1
1,3-dichloropropane	µg/L	<1
Dibromochloromethane	µg/L	<1
1,2-dibromoethane	µg/L	<1
Tetrachloroethene	µg/L	<1
1,1,1,2-tetrachloroethane	µg/L	<1
Chlorobenzene	µg/L	<1
Bromoform	µg/L	<1
1,1,2,2-tetrachloroethane	µg/L	<1
1,2,3-trichloropropane	µg/L	<1
Bromobenzene	µg/L	<1

VHC's in water		
Our Reference	UNITS	236880-1
Your Reference		QC306_200212
Date Sampled		12/02/2020
Type of sample		water
2-chlorotoluene	µg/L	<1
4-chlorotoluene	µg/L	<1
1,3-dichlorobenzene	µg/L	<1
1,4-dichlorobenzene	µg/L	<1
1,2-dichlorobenzene	µg/L	<1
1,2-dibromo-3-chloropropane	µg/L	<1
1,2,4-trichlorobenzene	µg/L	<1
Hexachlorobutadiene	µg/L	<1
1,2,3-trichlorobenzene	µg/L	<1
Surrogate Dibromofluoromethane	%	109
Surrogate toluene-d8	%	99
Surrogate 4-BFB	%	109

vTRH(C6-C10)/BTEXN in Water		
Our Reference		236880-1
Your Reference	UNITS	QC306_200212
Date Sampled		12/02/2020
Type of sample		water
Date extracted	-	20/02/2020
Date analysed	-	20/02/2020
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	109
Surrogate toluene-d8	%	99
Surrogate 4-BFB	%	109

svTRH (C10-C40) in Water		
Our Reference		236880-1
Your Reference	UNITS	QC306_200212
Date Sampled		12/02/2020
Type of sample		water
Date extracted	-	19/02/2020
Date analysed	-	19/02/2020
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
TRH >C_{10} - C_{16}	µg/L	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Surrogate o-Terphenyl	%	112

HM in water - dissolved		
Our Reference		236880-1
Your Reference	UNITS	QC306_200212
Date Sampled		12/02/2020
Type of sample		water
Date prepared	-	19/02/2020
Date analysed	-	19/02/2020
Arsenic-Dissolved	µg/L	5
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	<1
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	1
Zinc-Dissolved	µg/L	5

Method ID	Methodology Summary
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

QUALITY CONTROL: VHC's in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			20/02/2020	[NT]	[NT]	[NT]	[NT]	20/02/2020	[NT]
Date analysed	-			20/02/2020	[NT]	[NT]	[NT]	[NT]	20/02/2020	[NT]
Dichlorodifluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Vinyl Chloride	µg/L	0.3	Org-013	<0.3	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromomethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroform	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	119	[NT]
2,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	115	[NT]
1,1,1-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	119	[NT]
1,1-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibromomethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	115	[NT]
Bromodichloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	116	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
1,2-dibromoethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	116	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromoform	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: VHC's in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-013	100	[NT]	[NT]	[NT]	[NT]	97	[NT]
Surrogate toluene-d8	%		Org-013	98	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate 4-BFB	%		Org-013	108	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			20/02/2020	[NT]	[NT]	[NT]	[NT]	20/02/2020	[NT]
Date analysed	-			20/02/2020	[NT]	[NT]	[NT]	[NT]	20/02/2020	[NT]
TRH C_6 - C_9	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	117	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	117	[NT]
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	119	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	117	[NT]
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	114	[NT]
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	116	[NT]
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-016	100	[NT]	[NT]	[NT]	[NT]	97	[NT]
Surrogate toluene-d8	%		Org-016	98	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate 4-BFB	%		Org-016	108	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			19/02/2020	[NT]	[NT]	[NT]	[NT]	19/02/2020	[NT]
Date analysed	-			19/02/2020	[NT]	[NT]	[NT]	[NT]	19/02/2020	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	89	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	87	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	89	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	87	[NT]
Surrogate o-Terphenyl	%		Org-003	114	[NT]	[NT]	[NT]	[NT]	83	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			19/02/2020	1	19/02/2020	19/02/2020		19/02/2020	[NT]
Date analysed	-			19/02/2020	1	19/02/2020	19/02/2020		19/02/2020	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	5	5	0	100	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	98	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	96	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	103	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	102	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	[NT]		96	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	1	1	0	100	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	5	5	0	97	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	AECOM Australia Pty Ltd (Sydney)
Attention	Alex Latham

Sample Login Details

Your reference	60623599_1.0
Envirolab Reference	236880
Date Sample Received	17/02/2020
Date Instructions Received	17/02/2020
Date Results Expected to be Reported	24/02/2020

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	1 water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	18
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	VHC's in water	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	HM in water - dissolved
QC306_200212	✓	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info
Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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**

ENVIROLAB GROUP
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 236880

Sampled By: Kurtis Wathen
AECOM Project No: **60623599_1.0**
Date Received: 17/2/20
Time Received: 1633
Received by: CM
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/~~Broken~~/~~None~~

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

send the relevant **and requested** QC sample to Envirolab with crushed ice please

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	8 Metals (dissolved)	VHC	vinyl chloride low level (EP074(SIM))	TRH C6-C10, BTEXN	
1	MW105 - 200212	12/02/20		X				X			X	X	X	X		
2	MW16 - 200212										X	X	X	X		
3	MW17 - 200212										X	X	X	X		
4	MW115 - 200212										X	X	X	X		
5	MW21 - 200212										X	X	X	X		
6	MW19 - 200212										X	X	X	X		
7	MW01 - 200212										X	X	X	X		
8	MW102 - 200212										X	X	X	X		
9	QC304 - 200212														X	
10	QC305 - 200212														X	
11	QC306 - 200212										X	X	X	X		

Subcon / Forward Lab / Split WO
Lab / Analysis: ~~ALS~~ Envirolab
Organised By / Date:
Relinquished By / Date:
Connote / Courier:
WO No:
Attach By PO / Internal Sheets:

Environmental Division
Sydney
Work Order Reference
[redacted]
Telephone : +61-2-8784 8555

please forward QC306 to Envirolab

Esky ID

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

Comments:

Relinquished by: K. Wathen	Signed:	Date: 12/02/20	Relinquished by:	Signed:	Date:
Recieved by: AJ	Signed:	Date: 13/2/20 1530	Recieved by: CHANTE MOORE	Signed: CM	Date: 17/2/20 1633

Field_Worksheet_FORM025_Dec04

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2002766**	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	Date Samples Received	: 29-Jan-2020 15:45
Order number	: 60623599_1.1	Date Analysis Commenced	: 31-Jan-2020
C-O-C number	: ----	Issue Date	: 06-Feb-2020 17:37
Sampler	: Kurtis Wathen, Rebekah Panozzo		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 19		
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)				BH109_0.3-0.4	BH109_0.9-1.0	BH107_0.4-0.5	BH107_0.5-0.6	BH107_1.5-1.7
				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
				ES2002766-001	ES2002766-003	ES2002766-010	ES2002766-011	ES2002766-013
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	25.4	23.6	----	15.6	32.9
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	Yes	----	No*	----	----
Asbestos Type	1332-21-4	-	--	Ch + Am + Cr	----	Ch	----	----
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	No	----	----
Sample weight (dry)	----	0.01	g	521	----	506	----	----
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	0.150	----	0.0090	----	----
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	0.029	----	0.002	----	----
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	0.521	----	0.506	----	----
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	9	28	----	8	94
Cadmium	7440-43-9	1	mg/kg	1	13	----	6	2
Chromium	7440-47-3	2	mg/kg	16	241	----	29	180
Copper	7440-50-8	5	mg/kg	369	10800	----	785	986
Lead	7439-92-1	5	mg/kg	435	3780	----	280	5350
Nickel	7440-02-0	2	mg/kg	49	241	----	179	185
Zinc	7440-66-6	5	mg/kg	820	12400	----	307	1110
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.4	2.2	----	0.6	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	<0.5	----	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH109_0.3-0.4	BH109_0.9-1.0	BH107_0.4-0.5	BH107_0.5-0.6	BH107_1.5-1.7
				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
				ES2002766-001	ES2002766-003	ES2002766-010	ES2002766-011	ES2002766-013
				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
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	----	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	----	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	<100	<100
C29 - C36 Fraction	----	100	mg/kg	**110**	<100	----	**100**	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	**110**	<50	----	**100**	<50
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	**160**	<100	----	**150**	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	**160**	<50	----	**150**	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH109_0.3-0.4	BH109_0.9-1.0	BH107_0.4-0.5	BH107_0.5-0.6	BH107_1.5-1.7
				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
				ES2002766-001	ES2002766-003	ES2002766-010	ES2002766-011	ES2002766-013
				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	<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
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**84.7**	**81.4**	----	**77.5**	**82.2**
2-Chlorophenol-D4	93951-73-6	0.5	%	**88.9**	**86.7**	----	**80.0**	**86.7**
2.4.6-Tribromophenol	118-79-6	0.5	%	**80.8**	**83.5**	----	**73.0**	**77.5**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**97.7**	**96.6**	----	**98.2**	**96.9**
Anthracene-d10	1719-06-8	0.5	%	**91.9**	**91.5**	----	**78.6**	**93.8**
4-Terphenyl-d14	1718-51-0	0.5	%	**94.5**	**94.6**	----	**88.5**	**93.8**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**82.8**	**91.2**	----	**84.8**	**91.1**
Toluene-D8	2037-26-5	0.2	%	**85.7**	**100**	----	**81.9**	**99.4**
4-Bromofluorobenzene	460-00-4	0.2	%	**88.2**	**104**	----	**74.6**	**99.0**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH113_0.2-0.3	BH113_0.6-0.7	----	----	----
				29-Jan-2020 00:00	29-Jan-2020 00:00	----	----	----
				ES2002766-016	ES2002766-018	--------	--------	--------
				Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**13.0**	**12.1**	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**Yes**	**No**	----	----	----
Asbestos Type	1332-21-4	-	--	**Ch**	**-**	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres	**No**	**No**	----	----	----
Sample weight (dry)	----	0.01	g	**429**	**523**	----	----	----
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	**0.0512**	<0.0004	----	----	----
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	**0.012**	<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	**0.429**	**0.523**	----	----	----
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	**46**	**18**	----	----	----
Cadmium	7440-43-9	1	mg/kg	**2**	**1**	----	----	----
Chromium	7440-47-3	2	mg/kg	**28**	**22**	----	----	----
Copper	7440-50-8	5	mg/kg	**776**	**732**	----	----	----
Lead	7439-92-1	5	mg/kg	**4840**	**336**	----	----	----
Nickel	7440-02-0	2	mg/kg	**69**	**21**	----	----	----
Zinc	7440-66-6	5	mg/kg	**1160**	**752**	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	**1.0**	**0.4**	----	----	----
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)				BH113_0.2-0.3	BH113_0.6-0.7	----	----	----
				29-Jan-2020 00:00	29-Jan-2020 00:00	----	----	----
				ES2002766-016	ES2002766-018	--------	--------	--------
				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	**0.34**	----	----	----	----
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	**0.34**	----	----	----	----
^ 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)				BH113_0.2-0.3	BH113_0.6-0.7	----	----	----
				29-Jan-2020 00:00	29-Jan-2020 00:00	----	----	----
				ES2002766-016	ES2002766-018	--------	--------	--------
				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	<0.5	<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	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	**1.5**	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	**130**	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	**140**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH113_0.2-0.3	BH113_0.6-0.7	----	----	----
				29-Jan-2020 00:00	29-Jan-2020 00:00	----	----	----
				ES2002766-016	ES2002766-018	--------	--------	--------
				Result	Result	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued								
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	**270**	----	----	----
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	<100	**240**	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	**240**	----	----	----
^ >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	%	**81.8**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**89.5**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**74.5**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**76.7**	**83.8**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	**81.3**	**88.8**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%	**63.8**	**83.9**	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**93.9**	**98.1**	----	----	----
Anthracene-d10	1719-06-8	0.5	%	**90.1**	**90.4**	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	**91.8**	**96.5**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH113_0.2-0.3	BH113_0.6-0.7	----	----	----
				29-Jan-2020 00:00	29-Jan-2020 00:00	----	----	----
				ES2002766-016	ES2002766-018	--------	--------	--------
				Result	Result	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**95.5**	**88.6**	----	----	----
Toluene-D8	2037-26-5	0.2	%	**105**	**96.2**	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	**101**	**96.9**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				QC300 TB	----	----	----	----
				28-Jan-2020 00:00	----	----	----	----
				ES2002766-008	---------	---------	---------	---------
				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	%	**103**	----	----	----	----
Toluene-D8	2037-26-5	2	%	**98.8**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	**92.0**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH109_0.3-0.4 - 28-Jan-2020 00:00	Mid brown soil containing many fragments of degraded asbestos cement sheeting and large loose asbestos fibre bundles approximately 10x5x2mm.
EA200: Description	BH107_0.4-0.5 - 28-Jan-2020 00:00	Mid brown soil containing one fragment of degraded asbestos fibre board approximately 10x5x2mm.
EA200: Description	BH113_0.2-0.3 - 29-Jan-2020 00:00	Mid brown soil containing several fragments of degraded asbestos fibre board debris and several loose asbestos fibre bundles.
EA200: Description	BH113_0.6-0.7 - 29-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

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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES2002766**	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	Date Samples Received	: 29-Jan-2020
Order number	: 60623599_1.1	Date Analysis Commenced	: 31-Jan-2020
C-O-C number	: ----	Issue Date	: 06-Feb-2020
Sampler	: Kurtis Wathen, Rebekah Panozzo		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 19		
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	Anonymous	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	Anonymous	EA055: Moisture Content	---	0.1	%	15.8	13.3	17.2	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	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2834940)									
ES2002901-005	Anonymous	EP066: Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES2002766-016	BH113_0.2-0.3	EP066: Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2834939)									

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: 2834939) - continued									
ES2002901-005	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
ES2002766-016	BH113_0.2-0.3	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	0.34	0.42	22.3	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

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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: 2834939) - continued									
ES2002766-016	BH113_0.2-0.3	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: 2834939)									
ES2002901-005	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
ES2002766-016	BH113_0.2-0.3	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

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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: 2834939) - continued									
ES2002766-016	BH113_0.2-0.3	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: 2834938)									
ES2002901-005	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
ES2002766-016	BH113_0.2-0.3	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	0.6	25.3	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	0.6	26.4	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

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Sub-Matrix: **SOIL**

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Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
				Laboratory Duplicate (DUP) Report					
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2834938) - continued									
ES2002766-016	BH113_0.2-0.3	EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	1.2	82.4	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: 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: 2834937)									
ES2002901-005	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
ES2002766-016	BH113_0.2-0.3	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: 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: 2834937)									
ES2002901-005	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
ES2002766-016	BH113_0.2-0.3	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: 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

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: 2837679)									
ES2002532-001	Anonymous	EP080: C6 - C9 Fraction	---	20	µg/L	<20	<20	0.00	No Limit
ES2002771-003	Anonymous	EP080: C6 - C9 Fraction	---	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2837679)									
ES2002532-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
ES2002771-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2837679)									
ES2002532-001	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
ES2002771-003	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

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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: 2834940)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	108	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 2834939)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	84.4	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	100	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	95.1	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.6	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.0	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.5	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	82.8	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	89.4	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	89.1	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.2	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	81.3	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	78.0	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.4	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	77.9	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.0	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.2	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	76.6	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	108	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	102	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	100	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	92.8	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2834939)								

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: 2834939) - continued								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	84.3	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	80.3	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	76.8	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	85.5	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	92.2	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	76.4	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	77.9	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	85.4	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	80.4	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	81.4	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	84.2	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	91.1	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	83.2	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	104	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	84.9	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	79.3	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	84.8	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	99.1	41.0	123
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2834938)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	97.7	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	112	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	100.0	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	109	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	112	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	106	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	105	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	101	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	96.1	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	113	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	101	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	107	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	117	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	115	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	113	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2834894)								
EP080: C6 - C9 Fraction	---	10	mg/kg	<10	26 mg/kg	96.1	68.4	128

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 Petroleum Hydrocarbons (QCLot: 2834937)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	99.6	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	112	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	108	71.0	129
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: 2834937)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	109	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	110	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	103	63.0	131
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

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: 2837679)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	85.9	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2837679)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	91.2	75.0	127
EP080: BTEXN (QCLot: 2837679)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	88.2	70.0	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	80.4	69.0	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	86.3	70.0	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	87.1	69.0	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	87.6	72.0	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	99.2	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**

Matrix Spike (MS) Report

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)							
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: 2834940)							
ES2002766-016	BH113_0.2-0.3	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	84.0	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2834939)							
ES2002766-016	BH113_0.2-0.3	EP068: gamma-BHC	58-89-9	0.5 mg/kg	90.0	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	91.1	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	89.3	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	92.9	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	90.6	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	80.1	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2834939)							
ES2002766-016	BH113_0.2-0.3	EP068: Diazinon	333-41-5	0.5 mg/kg	89.4	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	78.3	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	88.2	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	72.6	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	87.3	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2834938)							
ES2002766-016	BH113_0.2-0.3	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	90.2	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	97.1	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: 2834937)							
ES2002766-016	BH113_0.2-0.3	EP071: C10 - C14 Fraction	----	523 mg/kg	87.4	73.0	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	106	53.0	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	128	52.0	132
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: 2834937)							

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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	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2834937) - continued							
ES2002766-016	BH113_0.2-0.3	EP071: >C10 - C16 Fraction	----	860 mg/kg	97.8	73.0	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	116	53.0	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	113	52.0	132
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

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	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2837679)							
ES2002532-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	115	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2837679)							
ES2002532-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	121	70.0	130
EP080: BTEXN (QCLot: 2837679)							
ES2002532-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	84.5	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	89.2	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	97.8	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	96.7	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	94.0	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	96.1	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2002766**	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	Date Samples Received	: 29-Jan-2020
Site	: ----	Issue Date	: 06-Feb-2020
Sampler	: Kurtis Wathen, Rebekah Panozzo	No. of samples received	: 19
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)								
BH109_0.3-0.4,	BH109_0.9-1.0,	**28-Jan-2020**	**----**	----	----	**31-Jan-2020**	11-Feb-2020	✓
BH107_0.5-0.6,	BH107_1.5-1.7							
Soil Glass Jar - Unpreserved (EA055)								
BH113_0.2-0.3,	BH113_0.6-0.7	**29-Jan-2020**	**----**	----	----	**31-Jan-2020**	12-Feb-2020	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)								
BH109_0.3-0.4,	BH107_0.4-0.5	**28-Jan-2020**	**----**	----	----	**03-Feb-2020**	26-Jul-2020	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)								
BH113_0.2-0.3,	BH113_0.6-0.7	**29-Jan-2020**	**----**	----	----	**03-Feb-2020**	27-Jul-2020	✓
EA200N: Asbestos Quantification (non-NATA)								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)								
BH109_0.3-0.4,	BH107_0.4-0.5	**28-Jan-2020**	**----**	----	----	**03-Feb-2020**	26-Jul-2020	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)								
BH113_0.2-0.3,	BH113_0.6-0.7	**29-Jan-2020**	**----**	----	----	**03-Feb-2020**	27-Jul-2020	✓
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
BH109_0.3-0.4,	BH109_0.9-1.0,	**28-Jan-2020**	**01-Feb-2020**	26-Jul-2020	✓	**03-Feb-2020**	26-Jul-2020	✓
BH107_0.5-0.6,	BH107_1.5-1.7							
Soil Glass Jar - Unpreserved (EG005T)								
BH113_0.2-0.3,	BH113_0.6-0.7	**29-Jan-2020**	**01-Feb-2020**	27-Jul-2020	✓	**03-Feb-2020**	27-Jul-2020	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
BH109_0.3-0.4,	BH109_0.9-1.0,	**28-Jan-2020**	**01-Feb-2020**	25-Feb-2020	✓	**03-Feb-2020**	25-Feb-2020	✓
BH107_0.5-0.6,	BH107_1.5-1.7							
Soil Glass Jar - Unpreserved (EG035T)								
BH113_0.2-0.3,	BH113_0.6-0.7	**29-Jan-2020**	**01-Feb-2020**	26-Feb-2020	✓	**03-Feb-2020**	26-Feb-2020	✓
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066)								
BH113_0.2-0.3		**29-Jan-2020**	**31-Jan-2020**	12-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
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
BH113_0.2-0.3	**29-Jan-2020**	**31-Jan-2020**	12-Feb-2020	✓	**03-Feb-2020**	11-Mar-2020	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
BH113_0.2-0.3	**29-Jan-2020**	**31-Jan-2020**	12-Feb-2020	✓	**03-Feb-2020**	11-Mar-2020	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH109_0.3-0.4, BH109_0.9-1.0, BH107_0.5-0.6, BH107_1.5-1.7	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**01-Feb-2020**	11-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH113_0.2-0.3, BH113_0.6-0.7	**29-Jan-2020**	**31-Jan-2020**	12-Feb-2020	✓	**01-Feb-2020**	11-Mar-2020	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071)							
BH109_0.3-0.4, BH109_0.9-1.0, BH107_0.5-0.6, BH107_1.5-1.7	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**01-Feb-2020**	11-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH109_0.3-0.4, BH109_0.9-1.0, BH107_0.5-0.6, BH107_1.5-1.7	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**04-Feb-2020**	11-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP071)							
BH113_0.2-0.3, BH113_0.6-0.7	**29-Jan-2020**	**31-Jan-2020**	12-Feb-2020	✓	**01-Feb-2020**	11-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH113_0.2-0.3, BH113_0.6-0.7	**29-Jan-2020**	**31-Jan-2020**	12-Feb-2020	✓	**04-Feb-2020**	12-Feb-2020	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071)							
BH109_0.3-0.4, BH109_0.9-1.0, BH107_0.5-0.6, BH107_1.5-1.7	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**01-Feb-2020**	11-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH109_0.3-0.4, BH109_0.9-1.0, BH107_0.5-0.6, BH107_1.5-1.7	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**04-Feb-2020**	11-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP071)							
BH113_0.2-0.3, BH113_0.6-0.7	**29-Jan-2020**	**31-Jan-2020**	12-Feb-2020	✓	**01-Feb-2020**	11-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH113_0.2-0.3, BH113_0.6-0.7	**29-Jan-2020**	**31-Jan-2020**	12-Feb-2020	✓	**04-Feb-2020**	12-Feb-2020	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
BH109_0.3-0.4, BH109_0.9-1.0, BH107_0.5-0.6, BH107_1.5-1.7	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**04-Feb-2020**	11-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH113_0.2-0.3, BH113_0.6-0.7	**29-Jan-2020**	**31-Jan-2020**	12-Feb-2020	✓	**04-Feb-2020**	12-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

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)							
QC300 - TB	**28-Jan-2020**	**05-Feb-2020**	11-Feb-2020	✓	**05-Feb-2020**	11-Feb-2020	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300 - TB	**28-Jan-2020**	**05-Feb-2020**	11-Feb-2020	✓	**05-Feb-2020**	11-Feb-2020	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300 - TB	**28-Jan-2020**	**05-Feb-2020**	11-Feb-2020	✓	**05-Feb-2020**	11-Feb-2020	✓