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Appendix D – Groundwater Field Data Sheets

PROJECT NAME: <u>UOS - UNIVERSITY OF SYDNEY</u>		PROJECT NUMBER: <u>GEOTLCOV25283AT</u>	
FIELD PERSONNEL: <u>SB</u>		DATE: <u>22.11.16</u>	
PROJECT MANAGER: <u>AR/DS</u>			

WELL ID: <u>MW01</u>	METER ID & TYPE: _____	TOTAL WELL DEPTH: <u>11.178</u>	SCREEN INTERVAL: _____
EQUIPMENT USED: BAILER ☒ WATERRA ☐ OTHER _____		WELL DIAMETER: <u>50mm</u>	WELL STICK-UP: _____

WELL GAUGING AND PURGE VOLUME CALCULATIONS (TOTAL WELL DEPTH) - (DEPTH TO WATER) = (WATER COLUMN) <u>11.178</u> m - <u>6.400</u> = <u>4.778</u> m	Use water column calculation together with the procedures in 'SOP- Groundwater Sampling - Bailers' to determine the correct volume to be purged from the well (enter this value in the field to the right)	LITRES PER 1 WELL VOLUME <u>18.1</u>	WELL HEADSPACE PID READING PID READING PPM: _____
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ORP REFERENCE ELECTRODE: (circle) SHE / Calomel Saturated KCl / Ag/AgCl 1M KCl / Ag/AgCl 4M KCl / Ag/AgCl Saturated KCl

TIME OF DAY	CYCLE/ PUMP RATE (ml/min)	VOLUME (L)	DEPTH TO WATER (m)	DISSOLVED OXYGEN (mg/l)		ELECTRICAL CONDUCTIVITY (mS or µS/cm)		pH (pH units)		REDOX POTENTIAL (mV)		TEMPERATURE (°C)		CLARITY - tick one					COMMENTS ODOUR, COLOUR, SEDIMENTS, PSH COLLECTED, etc	
				READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	Clear	Slightly Cloudy	Cloudy	Very Cloudy	Turbid		
4:00pm	18	10		2402		1.44		6.08				22.3						X		
	36	20		2413		1.52		5.96				22.8						X		
	54	30		2040		0.75		6.05				22.3						X		
	63			2529		1.16		5.97				22.3						X		
	72			2498		1.46		6.00				22.0						X		
	81			2432		1.52		6.01				22.2						X		
	85			2430		1.51		6.01				22.3						X		

STABILISATION CRITERIA (3 readings within following ranges)	± 10%	± 3%	± 0.1 unit	± 10mV	± 0.2°C
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DUPLICATE COLLECTED: Y ☐ N ☒ DUPLICATE ID: _____	TRIPLICATE COLLECTED: Y ☐ N ☐ TRIPLICATE ID: _____
WERE METALS FIELD FILTERED? Y ☒ N ☐ Unfiltered samples must not be put into a preserved container (i.e. 'metals' bottle)	
HAS THIS FORM BEEN COMPLETED IN FULL? Y ☐ N ☐	

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Appendix E – Laboratory Certificates and Chain of Custody Records

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

0109

Consigning Office: ClinchwoodReport Results to: Alex Ruettinger

Mobile:

Email:

@coffey.com

Invoices to:

Phone:

Email:

@coffey.com

Project No: GEOL-25283AF Task No: ContaminationProject Name: USO HEATH Laboratory: natSampler's Name: Sam Macri Project Manager: AR

Special Instructions:

Relevant agreements: Eurofins COF_ENAUABTF00952AA_MSA1 ; ALS COF_ENAUABTF00952AA_MSA2 and SGS COF_ENAUABTF00952AA_MSA3

Analysis Request Section

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	SWR	BY	MTALS	OC	ASBESTOS	BT+TC6-Ca	NOTES
	BH6 0-0.2	14/11	10:00	Soil	15/12	5 DAY							
	BH6 0.5	14/11	10:00	Soil	15/12		X	X	X	X			
	BH6 1m	14/11	10:00	Soil	15/12		X	X	X	X			
	BH6 1.6m	14/11	10:40	Soil	15/12								
	BH6 2m	14/11	10:30	Soil	15/12		X	X	X				
	TB/TS	14/11	2:00	Water	20/20						X		
	RBI Bay	14/11	3:00pm	Water	20/20		X	X	X				

RELINQUISHED BY

Name: Alex R Date: 17/11/16Coffey Environments Time: 11:50

Name: _____ Date: _____

Company: _____ Time: _____

RECEIVED BY

Name: Elonah Date: 17/11/16Company: Elonah Time: 14:05

Name: _____ Date: _____

Company: _____ Time: _____

Sample Receipt Advice: (Lab Use Only)

All Samples Received in Good Condition ☐All Documentation is in Proper Order ☐Samples Received Properly Chilled ☐

Lab. Ref/Batch No.

524260

*Container Typ: Preservation Codes: P - Plastic, G- Glass Bottle, J - Glass Jar, V - Ziplock Bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative, - Other Preservative

Sample Receipt Advice

Company name: **Coffey Geotechnics Pty Ltd Chatswood**
Contact name: **Alex Ructtinger**
Project name: **USYD HEALTH(CONTAMINATION)**
Project ID: **GEOTLCOV25283AF**
COC number: **Not provided**
Turn around time: **5 Day**
Date/Time received: **Nov 17, 2016 2:05 PM**
Eurofins | mgt reference: **524260**

Sample information

- ☒ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☒ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 1 degrees Celsius.
- ☒ All samples have been received as described on the above COC.
- ☒ COC has been completed correctly.
- ☒ Attempt to chill was evident.
- ☒ Appropriately preserved sample containers have been used.
- ☒ All samples were received in good condition.
- ☒ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☒ Appropriate sample containers have been used.
- ☒ Sample containers for volatile analysis received with zero headspace.
- ☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Nibha Vaidya on Phone : +61 (2) 9900 8400 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Alex Ructtinger - alexander.ructtinger@coffey.com.

Note: A copy of these results will also be delivered to the general Coffey Geotechnics Pty Ltd Chatswood email address.

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Project Name: USYD HEALTH(CONTAMINATION)
Project ID: GEOTLCOV25283AF

Order No.:
Report #: 524260
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: Nov 17, 2016 2:05 PM
Due: Nov 24, 2016
Priority: 5 Day
Contact Name: Alex Ructtinger

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Moisture Set	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271												
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794												
Perth Laboratory - NATA Site # 18217												
External Laboratory												
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID							
1	BH6_0.5	Nov 14, 2016	10:00AM	Soil	S16-No16836	X		X	X	X	X	
2	BH6_1m	Nov 14, 2016	10:00AM	Soil	S16-No16837	X		X	X	X	X	
3	BH6_2m	Nov 14, 2016	10:30AM	Soil	S16-No16838			X	X	X	X	
4	TB	Nov 14, 2016	7:00AM	Water	S16-No16839							X
5	TS	Nov 14, 2016	7:00AM	Water	S16-No16840							X
6	RB1 DAY1	Nov 14, 2016	3:00PM	Water	S16-No16841			X	X		X	
7	BH6_0.0-0.2	Nov 14, 2016	10:00AM	Soil	S16-No16842		X					
8	BH6_1.6m	Nov 14, 2016	10:30AM	Soil	S16-No16843		X					
Test Counts						2	2	4	4	3	4	2

Certificate of Analysis



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025—Testing
 The results of the tests, calibrations and/or
 measurements included in this document are traceable
 to Australian/national standards.

Coffey Geotechnics Pty Ltd Chatswood
Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Attention: Alex Ructtinger
Report 524260-AID
Project Name USYD HEALTH(CONTAMINATION)
Project ID GEOTLCOV25283AF
Received Date Nov 17, 2016
Date Reported Nov 24, 2016

Methodology:

Asbestos ID	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. Bulk samples include building materials, soils and ores.
Subsampling Soil Samples	The whole sample submitted is first dried and then sieved through a 10mm sieve followed by a 2mm sieve. All fibrous matter viz greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) Iron ores - Sampling and Sample preparation procedures is employed. Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis in accordance with AS 4964-2004.
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated and where required interfering organic fibres or matter may be removed by treating the sample for several hours at a temperature not exceeding 400 ± 30°C. The resultant material is then ground and examined in accordance with AS 4964-2004.
Limit of Reporting	The nominal detection limit of the AS4964 method is around 0.01%. The examination of large sample sizes (at least 500 ml is recommended) may improve the likelihood of identifying asbestos material in the greater than 2 mm fraction. The NEPM screening level of 0.001% w/w asbestos in soil for FA and AF (i.e. non-bonded/friable asbestos) only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. NOTE: NATA News, September 2011 – page 34, states, “Weighing of fibres is problematic and can lead to loss of fibres and potential exposure for laboratory analysts. To request laboratories to report information which is outside the scope of AS 4964-2004 and the scope of their accreditation is misleading and is most unwise” therefore such values reported are outside the scope of Eurofins mgt NATA accreditation as designated by an asterisk.

Project Name USYD HEALTH(CONTAMINATION)
Project ID GEOTLCOV25283AF
Date Sampled Nov 14, 2016
Report 524260-AID

Client Sample ID	Eurofins mgt Sample No.	Date Sampled	Sample Description	Result
BH6_0.5	16-No16836	Nov 14, 2016	Approximate Sample 209g Sample consisted of: Grey coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
BH6_1m	16-No16837	Nov 14, 2016	Approximate Sample 287g Sample consisted of: Grey coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported. A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Nov 18, 2016	Indefinite

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Project Name: USYD HEALTH(CONTAMINATION)
Project ID: GEOTLCOV25283AF

Order No.:
Report #: 524260
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: Nov 17, 2016 2:05 PM
Due: Nov 24, 2016
Priority: 5 Day
Contact Name: Alex Ructtinger

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Moisture Set	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271												
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794												
Perth Laboratory - NATA Site # 18217												
External Laboratory												
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID							
1	BH6_0.5	Nov 14, 2016	10:00AM	Soil	S16-No16836	X		X	X	X	X	
2	BH6_1m	Nov 14, 2016	10:00AM	Soil	S16-No16837	X		X	X	X	X	
3	BH6_2m	Nov 14, 2016	10:30AM	Soil	S16-No16838			X	X	X	X	
4	TB	Nov 14, 2016	7:00AM	Water	S16-No16839							X
5	TS	Nov 14, 2016	7:00AM	Water	S16-No16840							X
6	RB1 DAY1	Nov 14, 2016	3:00PM	Water	S16-No16841			X	X		X	
7	BH6_0.0-0.2	Nov 14, 2016	10:00AM	Soil	S16-No16842		X					
8	BH6_1.6m	Nov 14, 2016	10:30AM	Soil	S16-No16843		X					
Test Counts						2	2	4	4	3	4	2

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w: weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
COC	Chain of custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Western Australia Department of Health
NOHSC	National Occupational Health and Safety Commission
ACM	Bonded asbestos-containing material means any material containing more than 1% asbestos and comprises asbestos-containing-material which is in sound condition, although possibly broken or fragmented, and where the asbestos is bound in a matrix such as cement or resin. Common examples of ACM include but are not limited to: pipe and boiler insulation, sprayed-on fireproofing, troweled-on acoustical plaster, floor tile and mastic, floor linoleum, transite shingles, roofing materials, wall and ceiling plaster, ceiling tiles, and gasket materials. This term is restricted to material that cannot pass a 7 mm x 7 mm sieve. This sieve size is selected because it approximates the thickness of common asbestos cement sheeting and for fragments to be smaller than this would imply a high degree of damage and hence potential for fibre release.
FA	FA comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. This type of friable asbestos is defined here as asbestos material that is in a degraded condition such that it can be broken or crumbled by hand pressure. This material is typically unbonded or was previously bonded and is now significantly degraded (crumbling).
PACM	Presumed Asbestos-Containing Material means thermal system insulation and surfacing material found in buildings, vessels, and vessel sections constructed no later than 1980 that are assumed to contain greater than one percent asbestos but have not been sampled or analyzed to verify or negate the presence of asbestos.
AF	Asbestos fines (AF) are defined as free fibres, or fibre bundles, smaller than 7mm. It is the free fibres which present the greatest risk to human health, although very small fibres (< 5 microns in length) are not considered to be such a risk. AF also includes small fragments of bonded ACM that pass through a 7 mm x 7 mm sieve. (Note that for bonded ACM fragments to pass through a 7 mm x 7 mm sieve implies a substantial degree of damage which increases the potential for fibre release.)
AC	Asbestos cement means a mixture of cement and asbestos fibres (typically 90:10 ratios).

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Authorised by:

Nibha Vaidya

Senior Analyst-Asbestos (NSW)



Glenn Jackson

National Operations Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

Eurofins | mgt shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins | mgt be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

Certificate of Analysis

Coffey Geotechnics Pty Ltd Chatswood
Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or
measurements included in this document are traceable
to Australian/national standards.

Attention: Alex Ructtinger

Report 524260-S
Project name USYD HEALTH(CONTAMINATION)
Project ID GEOTLCOV25283AF
Received Date Nov 17, 2016

Client Sample ID			BH6_0.5 Soil	BH6_1m Soil	BH6_2m Soil
Sample Matrix					
Eurofins mgt Sample No.			S16-No16836	S16-No16837	S16-No16838
Date Sampled			Nov 14, 2016	Nov 14, 2016	Nov 14, 2016
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	20	mg/kg	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	73	100	< 50
TRH C29-C36	50	mg/kg	56	55	< 50
TRH C10-36 (Total)	50	mg/kg	129	155	< 50
BTEX					
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	0.3	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	0.5	< 0.3
4-Bromofluorobenzene (surr.)	1	%	68	68	69
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	2.4	3.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	2.7	3.7	0.7
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	2.9	4.0	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	0.8	< 0.5
Anthracene	0.5	mg/kg	0.6	1.2	< 0.5
Benz(a)anthracene	0.5	mg/kg	2.0	3.1	0.6
Benzo(a)pyrene	0.5	mg/kg	1.8	2.6	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	2.1	2.5	0.5
Benzo(g,h,i)perylene	0.5	mg/kg	1.0	1.4	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	1.1	1.5	< 0.5
Chrysene	0.5	mg/kg	1.4	2.1	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	4.0	6.6	1.2
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	0.8	1.1	< 0.5

Client Sample ID			BH6_0.5 Soil	BH6_1m Soil	BH6_2m Soil
Sample Matrix			S16-No16836	S16-No16837	S16-No16838
Eurofins mgt Sample No.			Nov 14, 2016	Nov 14, 2016	Nov 14, 2016
Date Sampled					
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons					
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	1.9	4.1	0.8
Pyrene	0.5	mg/kg	3.7	5.9	1.1
Total PAH*	0.5	mg/kg	20.4	32.9	4.2
2-Fluorobiphenyl (surr.)	1	%	91	93	94
p-Terphenyl-d14 (surr.)	1	%	113	114	119
Organochlorine Pesticides					
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Toxaphene	1	mg/kg	< 1	< 1	< 1
Dibutylchloroendate (surr.)	1	%	96	106	95
Tetrachloro-m-xylene (surr.)	1	%	95	89	97
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	120	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100
Heavy Metals					
Arsenic	2	mg/kg	6.0	4.9	11
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	25	18	30
Copper	5	mg/kg	37	34	12
Lead	5	mg/kg	26	27	19
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	20	24	8.7
Zinc	5	mg/kg	31	30	13
% Moisture	1	%	12	12	17

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: TRH C6-C36 - LTM-ORG-2010	Sydney	Nov 21, 2016	14 Day
BTEX - Method: TRH C6-C40 - LTM-ORG-2010	Sydney	Nov 21, 2016	14 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Sydney	Nov 21, 2016	14 Day
Eurofins mgt Suite B4			
Polycyclic Aromatic Hydrocarbons - Method: E007 Polyaromatic Hydrocarbons (PAH)	Sydney	Nov 21, 2016	14 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Sydney	Nov 21, 2016	14 Day
Organochlorine Pesticides - Method: E013 Organochlorine Pesticides (OC)	Sydney	Nov 21, 2016	14 Day
Metals M8 - Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS	Sydney	Nov 21, 2016	28 Day
% Moisture - Method: LTM-GEN-7080 Moisture	Sydney	Nov 18, 2016	14 Day

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Project Name: USYD HEALTH(CONTAMINATION)
Project ID: GEOTLCOV25283AF

Order No.:
Report #: 524260
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: Nov 17, 2016 2:05 PM
Due: Nov 24, 2016
Priority: 5 Day
Contact Name: Alex Ructtinger

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence / Presence	HOLD	Organochlorine Pesticides	Metals M8	Moisture Set	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271												
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794												
Perth Laboratory - NATA Site # 18217												
External Laboratory												
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID							
1	BH6_0.5	Nov 14, 2016	10:00AM	Soil	S16-No16836	X		X	X	X	X	
2	BH6_1m	Nov 14, 2016	10:00AM	Soil	S16-No16837	X		X	X	X	X	
3	BH6_2m	Nov 14, 2016	10:30AM	Soil	S16-No16838			X	X	X	X	
4	TB	Nov 14, 2016	7:00AM	Water	S16-No16839							X
5	TS	Nov 14, 2016	7:00AM	Water	S16-No16840							X
6	RB1 DAY1	Nov 14, 2016	3:00PM	Water	S16-No16841			X	X		X	
7	BH6_0.0-0.2	Nov 14, 2016	10:00AM	Soil	S16-No16842		X					
8	BH6_1.6m	Nov 14, 2016	10:30AM	Soil	S16-No16843		X					
Test Counts						2	2	4	4	3	4	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per Kilogram

ug/l: micrograms per litre

ppb: Parts per billion

org/100ml: Organisms per 100 millilitres

MPN/100mL: Most Probable Number of organisms per 100 millilitres

mg/l: milligrams per litre

ppm: Parts per million

%: Percentage

NTU: Nephelometric Turbidity Units

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs 20-130%

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4,4'-DDD	mg/kg	< 0.05			0.05	Pass	
4,4'-DDE	mg/kg	< 0.05			0.05	Pass	
4,4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	103			70-130	Pass	
TRH C10-C14	%	79			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	103			70-130	Pass	
Toluene	%	101			70-130	Pass	
Ethylbenzene	%	101			70-130	Pass	
m&p-Xylenes	%	101			70-130	Pass	
o-Xylene	%	101			70-130	Pass	
Xylenes - Total	%	101			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	123			70-130	Pass	
TRH C6-C10	%	93			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	95			70-130	Pass	
Acenaphthylene	%	92			70-130	Pass	
Anthracene	%	109			70-130	Pass	
Benz(a)anthracene	%	107			70-130	Pass	
Benzo(a)pyrene	%	90			70-130	Pass	
Benzo(b&j)fluoranthene	%	87			70-130	Pass	
Benzo(g,h,i)perylene	%	72			70-130	Pass	
Benzo(k)fluoranthene	%	94			70-130	Pass	
Chrysene	%	99			70-130	Pass	
Dibenz(a,h)anthracene	%	75			70-130	Pass	
Fluoranthene	%	105			70-130	Pass	
Fluorene	%	92			70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	74			70-130	Pass	
Naphthalene	%	108			70-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Phenanthrene			%	101			70-130	Pass	
Pyrene			%	107			70-130	Pass	
LCS - % Recovery									
Organochlorine Pesticides									
Chlordanes - Total			%	103			70-130	Pass	
4.4'-DDD			%	104			70-130	Pass	
4.4'-DDE			%	107			70-130	Pass	
4.4'-DDT			%	128			70-130	Pass	
a-BHC			%	95			70-130	Pass	
Aldrin			%	104			70-130	Pass	
b-BHC			%	96			70-130	Pass	
d-BHC			%	103			70-130	Pass	
Dieldrin			%	106			70-130	Pass	
Endosulfan I			%	105			70-130	Pass	
Endosulfan II			%	109			70-130	Pass	
Endosulfan sulphate			%	127			70-130	Pass	
Endrin			%	105			70-130	Pass	
Endrin aldehyde			%	109			70-130	Pass	
Endrin ketone			%	129			70-130	Pass	
g-BHC (Lindane)			%	98			70-130	Pass	
Heptachlor			%	123			70-130	Pass	
Heptachlor epoxide			%	107			70-130	Pass	
Methoxychlor			%	127			70-130	Pass	
LCS - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions									
TRH >C10-C16			%	70			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic			%	104			70-130	Pass	
Cadmium			%	106			70-130	Pass	
Chromium			%	111			70-130	Pass	
Copper			%	112			70-130	Pass	
Lead			%	111			70-130	Pass	
Mercury			%	106			70-130	Pass	
Nickel			%	109			70-130	Pass	
Zinc			%	116			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S16-No16188	NCP	%	86			70-130	Pass	
TRH C10-C14	S16-No14834	NCP	%	100			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S16-No16188	NCP	%	78			70-130	Pass	
Toluene	S16-No16188	NCP	%	77			70-130	Pass	
Ethylbenzene	S16-No16188	NCP	%	76			70-130	Pass	
m&p-Xylenes	S16-No16188	NCP	%	77			70-130	Pass	
o-Xylene	S16-No16188	NCP	%	77			70-130	Pass	
Xylenes - Total	S16-No16188	NCP	%	77			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S16-No16188	NCP	%	85			70-130	Pass	
TRH C6-C10	S16-No16188	NCP	%	85			70-130	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S16-No14834	NCP	%	84			70-130	Pass	
Acenaphthylene	S16-No14834	NCP	%	83			70-130	Pass	
Anthracene	S16-No14834	NCP	%	90			70-130	Pass	
Benz(a)anthracene	S16-No14834	NCP	%	95			70-130	Pass	
Benzo(a)pyrene	S16-No14834	NCP	%	86			70-130	Pass	
Benzo(b&j)fluoranthene	S16-No14834	NCP	%	87			70-130	Pass	
Benzo(g,h,i)perylene	S16-No14834	NCP	%	85			70-130	Pass	
Benzo(k)fluoranthene	S16-No14834	NCP	%	87			70-130	Pass	
Chrysene	S16-No14834	NCP	%	86			70-130	Pass	
Dibenz(a,h)anthracene	S16-No14834	NCP	%	82			70-130	Pass	
Fluoranthene	S16-No14834	NCP	%	94			70-130	Pass	
Fluorene	S16-No14834	NCP	%	83			70-130	Pass	
Indeno(1,2,3-cd)pyrene	S16-No14834	NCP	%	81			70-130	Pass	
Naphthalene	S16-No14834	NCP	%	96			70-130	Pass	
Phenanthrene	S16-No14834	NCP	%	90			70-130	Pass	
Pyrene	S16-No14834	NCP	%	92			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S16-No14897	NCP	%	101			70-130	Pass	
4,4'-DDD	S16-No14897	NCP	%	107			70-130	Pass	
4,4'-DDE	S16-No14897	NCP	%	105			70-130	Pass	
4,4'-DDT	S16-No14897	NCP	%	121			70-130	Pass	
a-BHC	S16-No14897	NCP	%	92			70-130	Pass	
Aldrin	S16-No14897	NCP	%	99			70-130	Pass	
b-BHC	S16-No14897	NCP	%	94			70-130	Pass	
d-BHC	S16-No14897	NCP	%	99			70-130	Pass	
Dieldrin	S16-No14897	NCP	%	104			70-130	Pass	
Endosulfan I	S16-No14897	NCP	%	102			70-130	Pass	
Endosulfan II	S16-No14897	NCP	%	110			70-130	Pass	
Endosulfan sulphate	S16-No14897	NCP	%	122			70-130	Pass	
Endrin	S16-No14897	NCP	%	97			70-130	Pass	
Endrin aldehyde	S16-No14897	NCP	%	116			70-130	Pass	
Endrin ketone	S16-No14897	NCP	%	130			70-130	Pass	
g-BHC (Lindane)	S16-No14897	NCP	%	95			70-130	Pass	
Heptachlor	S16-No14897	NCP	%	117			70-130	Pass	
Heptachlor epoxide	S16-No14897	NCP	%	104			70-130	Pass	
Methoxychlor	S16-No14897	NCP	%	122			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S16-No14834	NCP	%	89			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S16-No14834	NCP	%	90			70-130	Pass	
Cadmium	S16-No14834	NCP	%	91			70-130	Pass	
Chromium	S16-No14834	NCP	%	86			70-130	Pass	
Copper	S16-No14834	NCP	%	85			70-130	Pass	
Lead	S16-No16459	NCP	%	106			70-130	Pass	
Mercury	S16-No14834	NCP	%	92			70-130	Pass	
Nickel	S16-No14834	NCP	%	93			70-130	Pass	
Zinc	S16-No14834	NCP	%	123			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S16-No16299	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S16-No14748	NCP	mg/kg	180		21	30%	Pass	
TRH C15-C28	S16-No14748	NCP	mg/kg	1400		14	30%	Pass	
TRH C29-C36	S16-No14748	NCP	mg/kg	310		5.0	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S16-No16299	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S16-No16299	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S16-No16299	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S16-No16299	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S16-No16299	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S16-No16299	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S16-No16299	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S16-No16299	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S16-No14833	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S16-No14833	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S16-No14833	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S16-No14833	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S16-No14833	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S16-No14833	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g,h,i)perylene	S16-No14833	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S16-No14833	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S16-No14833	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a,h)anthracene	S16-No14833	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S16-No14833	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S16-No14833	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1,2,3-cd)pyrene	S16-No14833	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S16-No14833	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S16-No14833	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S16-No14833	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S16-No14896	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4,4'-DDD	S16-No14896	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4,4'-DDE	S16-No14896	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4,4'-DDT	S16-No14896	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S16-No14896	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S16-No14896	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S16-No14896	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S16-No14896	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S16-No14896	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S16-No14896	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S16-No14896	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S16-No14896	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S16-No14896	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S16-No14896	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S16-No14896	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S16-No14896	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Heptachlor	S16-No14896	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S16-No14896	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S16-No14896	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S16-No14896	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Toxaphene	S16-No14896	NCP	mg/kg	< 1	< 1	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	S16-No14748	NCP	mg/kg	440		21	30%	Pass
TRH >C16-C34	S16-No14748	NCP	mg/kg	1100		9.0	30%	Pass
TRH >C34-C40	S16-No14748	NCP	mg/kg	410		16	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S16-No14833	NCP	mg/kg	9.4	11	15	30%	Pass
Cadmium	S16-No14833	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S16-No14833	NCP	mg/kg	16	18	11	30%	Pass
Copper	S16-No14833	NCP	mg/kg	24	26	7.0	30%	Pass
Lead	S16-No14833	NCP	mg/kg	20	23	11	30%	Pass
Mercury	S16-No14833	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	S16-No14833	NCP	mg/kg	9.1	9.4	3.0	30%	Pass
Zinc	S16-No14833	NCP	mg/kg	46	43	6.0	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	S16-No05705	NCP	%	20	16	19	30%	Pass

Quality Control Analyte Summary Compliance

The table below is the actual occurrence of QC performed on the batch of samples within this report and as defined below

Analysis	Samples Analysed	Laboratory Duplicates Reported	Laboratory Matrix Spikes Reported	Method Blanks Reported	Laboratory Control Samples Reported
BTEX	3	1	1	1	1
Total Recoverable Hydrocarbons - 1999 NEPM	3	1	1	2	2
Total Recoverable Hydrocarbons - 2013 NEPM	3	1	1	2	2
Polycyclic Aromatic Hydrocarbons	3	1	1	1	1
Organochlorine Pesticides	3	1	1	1	1
Heavy Metals	3	1	1	1	1
% Moisture	3	1	NA	NA	NA

Quality Control Parameter Frequency Compliance follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure April 2011, Schedule B3, Guideline on Laboratory Analysis of Potentially Contaminated Soils and US EPA SW-846 Chapter 1: 'Quality Control'.

It comprises the following when a laboratory process batch is deemed to consist of up to 20 samples that are similar in terms of matrix and test procedure, and are processed as one unit for QC purposes. If more than 20 samples are being processed, they are considered as more than one batch.

Method blank

One method blank per process batch.

Laboratory duplicate

There should be at least one duplicate per process batch, or two duplicates if the process batch exceeds 10 samples.

Laboratory control sample (LCS)

There should be at least one LCS per process batch.

Matrix spikes

There should be one matrix spike per matrix type per process batch.

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Nibha Vaidya	Analytical Services Manager
Nibha Vaidya	Senior Analyst-Asbestos (NSW)
Ryan Hamilton	Senior Analyst-Inorganic (NSW)
Ryan Hamilton	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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Certificate of Analysis

Coffey Geotechnics Pty Ltd Chatswood
Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or
measurements included in this document are traceable
to Australian/national standards.

Attention: Alex Ructtinger

Report 524260-W
Project name USYD HEALTH(CONTAMINATION)
Project ID GEOTLCOV25283AF
Received Date Nov 17, 2016

Client Sample ID			TB Water	TS Water	RB1 DAY1 Water
Sample Matrix			S16-No16839	S16-No16840	S16-No16841
Eurofins mgt Sample No.			Nov 14, 2016	Nov 14, 2016	Nov 14, 2016
Date Sampled					
Test/Reference	LOR	Unit			
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	< 0.02	-	-
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	0.02	mg/L	< 0.02	85%	< 0.02
TRH C10-C14	0.05	mg/L	-	-	0.11
TRH C15-C28	0.1	mg/L	-	-	< 0.1
TRH C29-C36	0.1	mg/L	-	-	< 0.1
TRH C10-36 (Total)	0.1	mg/L	-	-	0.11
BTEX					
Benzene	0.001	mg/L	< 0.001	88%	< 0.001
Toluene	0.001	mg/L	< 0.001	89%	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	83%	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	81%	< 0.002
o-Xylene	0.001	mg/L	< 0.001	84%	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	82%	< 0.003
4-Bromofluorobenzene (surr.)	1	%	71	99	74
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
TRH C6-C10	0.02	mg/L	< 0.02	75%	-
Volatile Organics					
Naphthalene ^{N02}	0.01	mg/L	< 0.01	78%	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene ^{N02}	0.01	mg/L	-	-	< 0.01
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	-	-	< 0.05
TRH C6-C10	0.02	mg/L	-	-	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	-	-	< 0.02
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	0.001	mg/L	-	-	< 0.001
Acenaphthylene	0.001	mg/L	-	-	< 0.001
Anthracene	0.001	mg/L	-	-	< 0.001
Benz(a)anthracene	0.001	mg/L	-	-	< 0.001
Benzo(a)pyrene	0.001	mg/L	-	-	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	-	-	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	-	-	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	-	-	< 0.001
Chrysene	0.001	mg/L	-	-	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	-	-	< 0.001

Client Sample ID			TB	TS	RB1 DAY1
Sample Matrix			Water	Water	Water
Eurofins mgt Sample No.			S16-No16839	S16-No16840	S16-No16841
Date Sampled			Nov 14, 2016	Nov 14, 2016	Nov 14, 2016
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons					
Fluoranthene	0.001	mg/L	-	-	< 0.001
Fluorene	0.001	mg/L	-	-	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	-	-	< 0.001
Naphthalene	0.001	mg/L	-	-	< 0.001
Phenanthrene	0.001	mg/L	-	-	< 0.001
Pyrene	0.001	mg/L	-	-	< 0.001
Total PAH*	0.001	mg/L	-	-	< 0.001
2-Fluorobiphenyl (surr.)	1	%	-	-	104
p-Terphenyl-d14 (surr.)	1	%	-	-	133
Organochlorine Pesticides					
Chlordanes - Total	0.001	mg/L	-	-	< 0.001
4,4'-DDD	0.0001	mg/L	-	-	< 0.0001
4,4'-DDE	0.0001	mg/L	-	-	< 0.0001
4,4'-DDT	0.0001	mg/L	-	-	< 0.0001
α-BHC	0.0001	mg/L	-	-	< 0.0001
Aldrin	0.0001	mg/L	-	-	< 0.0001
β-BHC	0.0001	mg/L	-	-	< 0.0001
δ-BHC	0.0001	mg/L	-	-	< 0.0001
Dieldrin	0.0001	mg/L	-	-	< 0.0001
Endosulfan I	0.0001	mg/L	-	-	< 0.0001
Endosulfan II	0.0001	mg/L	-	-	< 0.0001
Endosulfan sulphate	0.0001	mg/L	-	-	< 0.0001
Endrin	0.0001	mg/L	-	-	< 0.0001
Endrin aldehyde	0.0001	mg/L	-	-	< 0.0001
Endrin ketone	0.0001	mg/L	-	-	< 0.0001
γ-BHC (Lindane)	0.0001	mg/L	-	-	< 0.0001
Heptachlor	0.0001	mg/L	-	-	< 0.0001
Heptachlor epoxide	0.0001	mg/L	-	-	< 0.0001
Hexachlorobenzene	0.0001	mg/L	-	-	< 0.0001
Methoxychlor	0.0001	mg/L	-	-	< 0.0001
Toxaphene	0.01	mg/L	-	-	< 0.01
Dibutylchloroendate (surr.)	1	%	-	-	113
Tetrachloro-m-xylene (surr.)	1	%	-	-	125
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
TRH >C10-C16	0.05	mg/L	-	-	< 0.05
TRH >C16-C34	0.1	mg/L	-	-	< 0.1
TRH >C34-C40	0.1	mg/L	-	-	< 0.1
Heavy Metals					
Arsenic	0.001	mg/L	-	-	0.001
Cadmium	0.0002	mg/L	-	-	< 0.0002
Chromium	0.001	mg/L	-	-	0.004
Copper	0.001	mg/L	-	-	0.025
Lead	0.001	mg/L	-	-	0.023
Mercury	0.0001	mg/L	-	-	< 0.0001
Nickel	0.001	mg/L	-	-	0.020
Zinc	0.005	mg/L	-	-	0.060

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
TRH C6-C10 less BTEX (F1) - Method: LM-LTM-ORG-2010	Sydney	Nov 18, 2016	14 Day
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: TRH C6-C36 - LTM-ORG-2010	Sydney	Nov 21, 2016	7 Day
BTEX - Method: TRH C6-C40 - LTM-ORG-2010	Sydney	Nov 18, 2016	14 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Sydney	Nov 18, 2016	7 Day
Volatile Organics - Method: E016 Volatile Organic Compounds (VOC)	Sydney	Nov 18, 2016	7 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Sydney	Nov 18, 2016	7 Day
Eurofins mgt Suite B4			
Polycyclic Aromatic Hydrocarbons - Method: E007 Polyaromatic Hydrocarbons (PAH)	Sydney	Nov 21, 2016	7 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Sydney	Nov 21, 2016	7 Day
Organochlorine Pesticides - Method: E013 Organochlorine Pesticides (OC)	Sydney	Nov 21, 2016	7 Day
Metals M8 - Method: LTM-MET-3040 Metals in Waters by ICP-MS	Sydney	Nov 21, 2016	28 Day

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Project Name: USYD HEALTH(CONTAMINATION)
Project ID: GEOTLCOV25283AF

Order No.:
Report #: 524260
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: Nov 17, 2016 2:05 PM
Due: Nov 24, 2016
Priority: 5 Day
Contact Name: Alex Ructtinger

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Moisture Set	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271												
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794												
Perth Laboratory - NATA Site # 18217												
External Laboratory												
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID							
1	BH6_0.5	Nov 14, 2016	10:00AM	Soil	S16-No16836	X		X	X	X	X	
2	BH6_1m	Nov 14, 2016	10:00AM	Soil	S16-No16837	X		X	X	X	X	
3	BH6_2m	Nov 14, 2016	10:30AM	Soil	S16-No16838			X	X	X	X	
4	TB	Nov 14, 2016	7:00AM	Water	S16-No16839							X
5	TS	Nov 14, 2016	7:00AM	Water	S16-No16840							X
6	RB1 DAY1	Nov 14, 2016	3:00PM	Water	S16-No16841			X	X		X	
7	BH6_0.0-0.2	Nov 14, 2016	10:00AM	Soil	S16-No16842		X					
8	BH6_1.6m	Nov 14, 2016	10:30AM	Soil	S16-No16843		X					
Test Counts						2	2	4	4	3	4	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per Kilogram

ug/l: micrograms per litre

ppb: Parts per billion

org/100ml: Organisms per 100 millilitres

MPN/100mL: Most Probable Number of organisms per 100 millilitres

mg/l: milligrams per litre

ppm: Parts per million

%: Percentage

NTU: Nephelometric Turbidity Units

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs 20-130%

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
Method Blank							
Volatile Organics							
Naphthalene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g,h,i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a,h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1,2,3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/L	< 0.001			0.001	Pass	
4,4'-DDD	mg/L	< 0.0001			0.0001	Pass	
4,4'-DDE	mg/L	< 0.0001			0.0001	Pass	
4,4'-DDT	mg/L	< 0.0001			0.0001	Pass	
a-BHC	mg/L	< 0.0001			0.0001	Pass	
Aldrin	mg/L	< 0.0001			0.0001	Pass	
b-BHC	mg/L	< 0.0001			0.0001	Pass	
d-BHC	mg/L	< 0.0001			0.0001	Pass	
Dieldrin	mg/L	< 0.0001			0.0001	Pass	
Endosulfan I	mg/L	< 0.0001			0.0001	Pass	
Endosulfan II	mg/L	< 0.0001			0.0001	Pass	
Endosulfan sulphate	mg/L	< 0.0001			0.0001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin	mg/L	< 0.0001			0.0001	Pass	
Endrin aldehyde	mg/L	< 0.0001			0.0001	Pass	
Endrin ketone	mg/L	< 0.0001			0.0001	Pass	
g-BHC (Lindane)	mg/L	< 0.0001			0.0001	Pass	
Heptachlor	mg/L	< 0.0001			0.0001	Pass	
Heptachlor epoxide	mg/L	< 0.0001			0.0001	Pass	
Hexachlorobenzene	mg/L	< 0.0001			0.0001	Pass	
Methoxychlor	mg/L	< 0.0001			0.0001	Pass	
Toxaphene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	88			70-130	Pass	
TRH C10-C14	%	100			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	94			70-130	Pass	
Toluene	%	83			70-130	Pass	
Ethylbenzene	%	85			70-130	Pass	
m&p-Xylenes	%	87			70-130	Pass	
o-Xylene	%	87			70-130	Pass	
Xylenes - Total	%	87			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	%	78			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
Naphthalene	%	124			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	118			70-130	Pass	
Acenaphthylene	%	119			70-130	Pass	
Anthracene	%	110			70-130	Pass	
Benz(a)anthracene	%	123			70-130	Pass	
Benzo(a)pyrene	%	105			70-130	Pass	
Benzo(b&j)fluoranthene	%	121			70-130	Pass	
Benzo(g,h,i)perylene	%	122			70-130	Pass	
Benzo(k)fluoranthene	%	127			70-130	Pass	
Chrysene	%	112			70-130	Pass	
Dibenz(a,h)anthracene	%	104			70-130	Pass	

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Fluoranthene				%	123			70-130	Pass	
Fluorene				%	124			70-130	Pass	
Indeno(1.2.3-cd)pyrene				%	112			70-130	Pass	
Naphthalene				%	109			70-130	Pass	
Phenanthrene				%	113			70-130	Pass	
Pyrene				%	125			70-130	Pass	
LCS - % Recovery										
Organochlorine Pesticides										
Chlordanes - Total				%	100			70-130	Pass	
4.4'-DDD				%	100			70-130	Pass	
4.4'-DDE				%	100			70-130	Pass	
a-BHC				%	100			70-130	Pass	
Aldrin				%	100			70-130	Pass	
b-BHC				%	100			70-130	Pass	
d-BHC				%	100			70-130	Pass	
Dieldrin				%	100			70-130	Pass	
Endosulfan I				%	100			70-130	Pass	
Endosulfan II				%	100			70-130	Pass	
Endrin				%	100			70-130	Pass	
g-BHC (Lindane)				%	100			70-130	Pass	
Heptachlor				%	120			70-130	Pass	
Heptachlor epoxide				%	100			70-130	Pass	
LCS - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions										
TRH >C10-C16				%	97			70-130	Pass	
LCS - % Recovery										
Heavy Metals										
Arsenic				%	98			70-130	Pass	
Cadmium				%	108			70-130	Pass	
Chromium				%	93			70-130	Pass	
Copper				%	91			70-130	Pass	
Lead				%	108			70-130	Pass	
Mercury				%	113			70-130	Pass	
Nickel				%	91			70-130	Pass	
Zinc				%	101			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					Result 1					
TRH C6-C9	M16-No16026	NCP	%	104			70-130	Pass		
Spike - % Recovery										
BTEX					Result 1					
Benzene	M16-No16026	NCP	%	105			70-130	Pass		
Toluene	M16-No16026	NCP	%	93			70-130	Pass		
Ethylbenzene	M16-No16026	NCP	%	95			70-130	Pass		
m&p-Xylenes	M16-No16026	NCP	%	99			70-130	Pass		
o-Xylene	M16-No16026	NCP	%	97			70-130	Pass		
Xylenes - Total	M16-No16026	NCP	%	99			70-130	Pass		
Spike - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					Result 1					
TRH C6-C10	M16-No16026	NCP	%	92			70-130	Pass		
Spike - % Recovery										
Volatile Organics					Result 1					
Naphthalene	M16-No16026	NCP	%	121			70-130	Pass		
Spike - % Recovery										

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heavy Metals				Result 1					
Arsenic	S16-No17464	NCP	%	100			70-130	Pass	
Cadmium	S16-No17464	NCP	%	107			70-130	Pass	
Chromium	S16-No17464	NCP	%	92			70-130	Pass	
Copper	S16-No17464	NCP	%	93			70-130	Pass	
Lead	S16-No17464	NCP	%	83			70-130	Pass	
Mercury	S16-No17464	NCP	%	112			70-130	Pass	
Nickel	S16-No17464	NCP	%	92			70-130	Pass	
Zinc	S16-No17464	NCP	%	95			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M16-No16129	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M16-No16129	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	M16-No16129	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	M16-No16129	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	M16-No16129	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	M16-No16129	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	M16-No16129	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C10	M16-No16129	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Naphthalene	M16-No16129	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S16-No16940	NCP	mg/L	0.003	0.003	2.0	30%	Pass	
Cadmium	S16-No12299	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	B16-No18486	NCP	mg/L	16	16	1.0	30%	Pass	
Copper	S16-No16634	NCP	mg/L	0.014	0.013	4.0	30%	Pass	
Lead	S16-No16634	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	S16-No16634	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	S16-No16634	NCP	mg/L	0.046	0.045	2.0	30%	Pass	
Zinc	B16-No18486	NCP	mg/L	50	61	20	30%	Pass	

Quality Control Analyte Summary Compliance

The table below is the actual occurrence of QC performed on the batch of samples within this report and as defined below

Analysis	Samples Analysed	Laboratory Duplicates Reported	Laboratory Matrix Spikes Reported	Method Blanks Reported	Laboratory Control Samples Reported
Total Recoverable Hydrocarbons - 1999 NEPM	3	1	1	2	2
Total Recoverable Hydrocarbons - 2013 NEPM	3	1	1	NA	NA
BTEX	3	1	1	1	1
Volatile Organics	2	1	1	1	1
Polycyclic Aromatic Hydrocarbons	1	0	0	1	1
Organochlorine Pesticides	1	0	0	1	1
Heavy Metals	1	1	1	1	1

Quality Control Parameter Frequency Compliance follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure April 2011, Schedule B3, Guideline on Laboratory Analysis of Potentially Contaminated Soils and US EPA SW-846 Chapter 1: 'Quality Control'.

It comprises the following when a laboratory process batch is deemed to consist of up to 20 samples that are similar in terms of matrix and test procedure, and are processed as one unit for QC purposes. If more than 20 samples are being processed, they are considered as more than one batch.

Method blank

One method blank per process batch.

Laboratory duplicate

There should be at least one duplicate per process batch, or two duplicates if the process batch exceeds 10 samples.

Laboratory control sample (LCS)

There should be at least one LCS per process batch.

Matrix spikes

There should be one matrix spike per matrix type per process batch.

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Nibha Vaidya	Analytical Services Manager
Ryan Hamilton	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1 0110

WSD HEALTH

Consigning Office: ChesterwoodReport Results to: Alex Ruckhiser

Invoices to:

Mobile:

Email:

@coffey.com

Phone:

Email:

@coffey.com

Project No: GE02LW12503AT Task No: ContaminationProject Name: Systech Linn Bldg. RenovationSampler's Name: Sam RuckhiserProject Manager: AR

Special Instructions:

Relevant agreements: Eurofins COF_ENAUABTF00952AA_MSA1 ; ALS COF_ENAUABTF00952AA_MSA2 and SGS COF_ENAUABTF00952AA_MSA3

Analysis Request Section

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	SWEEBY	METALS MB	OC P	ASBESTOS	GRE + C6-C9	SVOC	PH + Sulphate + Chloride	NOTES
	BH4-1 0-0.2 m	15/11	9:00	15, 12	→	5 DAY	X	X	X	X				
	BH4-2 0.5 m	15/11	9:15	15, 12	→		X	X	X	X				
	BH4-3 1 m	15/11	9:30	15, 12	→									
	RBT Dug 2	15/11	12:00pm	water	2V, 14, 2P		X	X	X					
	TB/TS	15/11	7:00am	water	2V, 2V									
	BH2-1 0-0.2	15/11	3:10	Soil	15, 12		X	X	X	X				
	BH2-2 0.5	15/11	3:40	Soil	15, 12		X	X	X	X				
	Dup 1	15/11	3:45	Soil	15		X	X	X					
	BH2-3	15/11	3:50	Soil	15, 12		X	X	X					
	BH2-4	15/11	4:00	Soil	15, 17									
	BH6-5			Soil	15								X	
	BH4-4			Soil	15								X	
	BH2-5			Soil	15								X	
	BH2-6			Soil	15								X	

RELINQUISHED BY

Name: Alex R
Coffey EnvironmentsDate: 17/11/16
Time: 11:50

RECEIVED BY

Name: Elenw
Company: EFingDate: 17/11/16
Time: 14:05Name:
Company:Date:
Time:Name:
Company:Date:
Time:

Sample Receipt Advice: (Lab Use Only)

All Samples Received in Good Condition ☒All Documentation Is in Proper Order ☒Samples Received Properly Chilled ☒

Lab. Ref/Batch No.

524268

*Container Type: P - Plastic, G - Glass Bottle, J - Glass Jar, V - Ziplock Bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative, - - Other Preservative

Sample Receipt Advice

Company name: **Coffey Geotechnics Pty Ltd Chatswood**
Contact name: **Alex Ructtinger**
Project name: **USYD HEALTH(CONTAMINATION)**
Project ID: **GEOTLCOV25283AF**
COC number: **Not provided**
Turn around time: **5 Day**
Date/Time received: **Nov 17, 2016 2:05 PM**
Eurofins | mgt reference: **524268**

Sample information

- ☒ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☒ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 1 degrees Celsius.
- ☒ All samples have been received as described on the above COC.
- ☒ COC has been completed correctly.
- ☒ Attempt to chill was evident.
- ☒ Appropriately preserved sample containers have been used.
- ☒ All samples were received in good condition.
- ☒ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☒ Appropriate sample containers have been used.
- ☒ Sample containers for volatile analysis received with zero headspace.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Extra sample received BH1_3_1m (sample date 11.11.16) placed on hold | Analysis conducted from bag BH2_3 no jar received

Contact notes

If you have any questions with respect to these samples please contact:

Nibha Vaidya on Phone : +61 (2) 9900 8400 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Alex Ructtinger - alexander.ructtinger@coffey.com.

Note: A copy of these results will also be delivered to the general Coffey Geotechnics Pty Ltd Chatswood email address.

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Project Name: USYD HEALTH(CONTAMINATION)
Project ID: GEOTLCOV25283AF

Order No.:
Report #: 524268
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: Nov 17, 2016 2:05 PM
Due: Nov 24, 2016
Priority: 5 Day
Contact Name: Alex Ructtinger

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	Chloride	HOLD	pH (1:5 Aqueous extract)	Sulphate as SO ₄ (1:5 aqueous extract)	Organochlorine Pesticides	Metals M8	Moisture Set	Semivolatile Organics	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271																
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																
Perth Laboratory - NATA Site # 18217																
External Laboratory																
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID											
1	BH4_1_0.0-0.2m	Nov 15, 2016	9:00AM	Soil	S16-No16921	X					X	X	X		X	
2	BH4_2_0.5m	Nov 15, 2016	9:15AM	Soil	S16-No16922	X					X	X	X	X	X	
3	RB1 DAY2	Nov 15, 2016	12:00PM	Water	S16-No16923						X	X			X	
4	TB	Nov 15, 2016	7:00AM	Water	S16-No16924											X
5	TS	Nov 15, 2016	7:00AM	Water	S16-No16925											X
6	BH2_1_0-0.2	Nov 15, 2016	3:30PM	Soil	S16-No16926	X					X	X	X		X	
7	BH2_2_0.5	Nov 15, 2016	3:40PM	Soil	S16-No16927	X					X	X	X		X	
8	DUP1	Nov 15, 2016	3:45PM	Soil	S16-No16928						X	X	X		X	
9	BH2_3	Nov 15, 2016	3:50PM	Soil	S16-No16929						X	X	X		X	

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Project Name: USYD HEALTH(CONTAMINATION)
Project ID: GEOTLCOV25283AF

Order No.:
Report #: 524268
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: Nov 17, 2016 2:05 PM
Due: Nov 24, 2016
Priority: 5 Day
Contact Name: Alex Ructtinger

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	Chloride	HOLD	pH (1:5 Aqueous extract)	Sulphate as SO ₄ (1:5 aqueous extract)	Organochlorine Pesticides	Metals M8	Moisture Set	Semivolatile Organics	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271																
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																
Perth Laboratory - NATA Site # 18217																
10	BH6_5	Nov 15, 2016		Soil	S16-No16930		X		X	X			X			
11	BH4_4	Nov 15, 2016		Soil	S16-No16931		X		X	X			X			
12	BH2_5	Nov 15, 2016		Soil	S16-No16932		X		X	X			X			
13	BH2_6	Nov 15, 2016		Soil	S16-No16933		X		X	X			X			
14	BH4_3	Nov 15, 2016	9:30AM	Soil	S16-No16934			X								
15	BH2_4	Nov 15, 2016	4:00PM	Soil	S16-No16935			X								
16	BH1_3_1m	Nov 15, 2016	4:00PM	Soil	S16-No16948			X								
Test Counts						4	4	3	4	4	7	7	10	1	7	2

Certificate of Analysis



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025—Testing
 The results of the tests, calibrations and/or
 measurements included in this document are traceable
 to Australian/national standards.

Coffey Geotechnics Pty Ltd Chatswood
Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Attention: Alex Ructtinger
Report 524268-AID
Project Name USYD HEALTH(CONTAMINATION)
Project ID GEOTLCOV25283AF
Received Date Nov 17, 2016
Date Reported Nov 24, 2016

Methodology:

Asbestos ID	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. Bulk samples include building materials, soils and ores.
Subsampling Soil Samples	The whole sample submitted is first dried and then sieved through a 10mm sieve followed by a 2mm sieve. All fibrous matter viz greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) Iron ores - Sampling and Sample preparation procedures is employed. Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis in accordance with AS 4964-2004.
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated and where required interfering organic fibres or matter may be removed by treating the sample for several hours at a temperature not exceeding 400 ± 30°C. The resultant material is then ground and examined in accordance with AS 4964-2004.
Limit of Reporting	The nominal detection limit of the AS4964 method is around 0.01%. The examination of large sample sizes (at least 500 ml is recommended) may improve the likelihood of identifying asbestos material in the greater than 2 mm fraction. The NEPM screening level of 0.001% w/w asbestos in soil for FA and AF (i.e. non-bonded/friable asbestos) only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. NOTE: NATA News, September 2011 – page 34, states, “Weighing of fibres is problematic and can lead to loss of fibres and potential exposure for laboratory analysts. To request laboratories to report information which is outside the scope of AS 4964-2004 and the scope of their accreditation is misleading and is most unwise” therefore such values reported are outside the scope of Eurofins mgt NATA accreditation as designated by an asterisk.

Project Name USYD HEALTH(CONTAMINATION)
Project ID GEOTLCOV25283AF
Date Sampled Nov 15, 2016
Report 524268-AID

Client Sample ID	Eurofins mgt Sample No.	Date Sampled	Sample Description	Result
BH4_1_0.0-0.2m	16-No16921	Nov 15, 2016	Approximate Sample 485g Sample consisted of: Grey coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
BH4_2_0.5m	16-No16922	Nov 15, 2016	Approximate Sample 378g Sample consisted of: Grey coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
BH2_1_0-0.2	16-No16926	Nov 15, 2016	Approximate Sample 320g Sample consisted of: Light borwn coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
BH2_2_0.5	16-No16927	Nov 15, 2016	Approximate Sample 87g Sample consisted of: Light borwn coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported. A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Nov 18, 2016	Indefinite

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Project Name: USYD HEALTH(CONTAMINATION)
Project ID: GEOTLCOV25283AF

Order No.:
Report #: 524268
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: Nov 17, 2016 2:05 PM
Due: Nov 24, 2016
Priority: 5 Day
Contact Name: Alex Ructtinger

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	Chloride	HOLD	pH (1:5 Aqueous extract)	Sulphate as SO ₄ (1:5 aqueous extract)	Organochlorine Pesticides	Metals M8	Moisture Set	Semivolatile Organics	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271																
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																
Perth Laboratory - NATA Site # 18217																
External Laboratory																
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID											
1	BH4_1_0.0-0.2m	Nov 15, 2016	9:00AM	Soil	S16-No16921	X					X	X	X		X	
2	BH4_2_0.5m	Nov 15, 2016	9:15AM	Soil	S16-No16922	X					X	X	X	X	X	
3	RB1 DAY2	Nov 15, 2016	12:00PM	Water	S16-No16923						X	X			X	
4	TB	Nov 15, 2016	7:00AM	Water	S16-No16924											X
5	TS	Nov 15, 2016	7:00AM	Water	S16-No16925											X
6	BH2_1_0-0.2	Nov 15, 2016	3:30PM	Soil	S16-No16926	X					X	X	X		X	
7	BH2_2_0.5	Nov 15, 2016	3:40PM	Soil	S16-No16927	X					X	X	X		X	
8	DUP1	Nov 15, 2016	3:45PM	Soil	S16-No16928						X	X	X		X	
9	BH2_3	Nov 15, 2016	3:50PM	Soil	S16-No16929						X	X	X		X	

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Sample Detail						Asbestos Absence /Presence	Chloride	HOLD	pH (1:5 Aqueous extract)	Sulphate as SO ₄ (1:5 aqueous extract)	Organochlorine Pesticides	Metals M8	Moisture Set	Semivolatile Organics	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271																
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																
Perth Laboratory - NATA Site # 18217																
10	BH6_5	Nov 15, 2016		Soil	S16-No16930		X		X	X			X			
11	BH4_4	Nov 15, 2016		Soil	S16-No16931		X		X	X			X			
12	BH2_5	Nov 15, 2016		Soil	S16-No16932		X		X	X			X			
13	BH2_6	Nov 15, 2016		Soil	S16-No16933		X		X	X			X			
14	BH4_3	Nov 15, 2016	9:30AM	Soil	S16-No16934			X								
15	BH2_4	Nov 15, 2016	4:00PM	Soil	S16-No16935			X								
16	BH1_3_1m	Nov 15, 2016	4:00PM	Soil	S16-No16948			X								
Test Counts						4	4	3	4	4	7	7	10	1	7	2

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w: weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
COC	Chain of custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Western Australia Department of Health
NOHSC	National Occupational Health and Safety Commission
ACM	Bonded asbestos-containing material means any material containing more than 1% asbestos and comprises asbestos-containing-material which is in sound condition, although possibly broken or fragmented, and where the asbestos is bound in a matrix such as cement or resin. Common examples of ACM include but are not limited to: pipe and boiler insulation, sprayed-on fireproofing, troweled-on acoustical plaster, floor tile and mastic, floor linoleum, transite shingles, roofing materials, wall and ceiling plaster, ceiling tiles, and gasket materials. This term is restricted to material that cannot pass a 7 mm x 7 mm sieve. This sieve size is selected because it approximates the thickness of common asbestos cement sheeting and for fragments to be smaller than this would imply a high degree of damage and hence potential for fibre release.
FA	FA comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. This type of friable asbestos is defined here as asbestos material that is in a degraded condition such that it can be broken or crumbled by hand pressure. This material is typically unbonded or was previously bonded and is now significantly degraded (crumbling).
PACM	Presumed Asbestos-Containing Material means thermal system insulation and surfacing material found in buildings, vessels, and vessel sections constructed no later than 1980 that are assumed to contain greater than one percent asbestos but have not been sampled or analyzed to verify or negate the presence of asbestos.
AF	Asbestos fines (AF) are defined as free fibres, or fibre bundles, smaller than 7mm. It is the free fibres which present the greatest risk to human health, although very small fibres (< 5 microns in length) are not considered to be such a risk. AF also includes small fragments of bonded ACM that pass through a 7 mm x 7 mm sieve. (Note that for bonded ACM fragments to pass through a 7 mm x 7 mm sieve implies a substantial degree of damage which increases the potential for fibre release.)
AC	Asbestos cement means a mixture of cement and asbestos fibres (typically 90:10 ratios).

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	No
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Authorised by:

Nibha Vaidya

Senior Analyst-Asbestos (NSW)



Glenn Jackson

National Operations Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

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Certificate of Analysis

Coffey Geotechnics Pty Ltd Chatswood
Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or
measurements included in this document are traceable
to Australian/national standards.

Attention: **Alex Ructtinger**

Report **524268-S**
Project name **USYD HEALTH(CONTAMINATION)**
Project ID **GEOTLCOV25283AF**
Received Date **Nov 17, 2016**

Client Sample ID			BH4_1_0.0-0.2m	BH4_2_0.5m	BH2_1_0-0.2	BH2_2_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S16-No16921	S16-No16922	S16-No16926	S16-No16927
Date Sampled			Nov 15, 2016	Nov 15, 2016	Nov 15, 2016	Nov 15, 2016
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	80	62	83	73
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	1.8	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	2.0	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	2.3	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	0.7	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	1.3	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	1.3	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	1.2	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	1.1	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	1.0	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	1.0	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	4.1	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	0.8	< 0.5	< 0.5	< 0.5

Client Sample ID			BH4_1_0.0-0.2m	BH4_2_0.5m	BH2_1_0-0.2	BH2_2_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S16-No16921	S16-No16922	S16-No16926	S16-No16927
Date Sampled			Nov 15, 2016	Nov 15, 2016	Nov 15, 2016	Nov 15, 2016
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	3.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	3.3	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	19.8	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	93	100	93	91
p-Terphenyl-d14 (surr.)	1	%	101	108	103	100
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Toxaphene	1	mg/kg	< 1	< 1	< 1	< 1
Dibutylchlorodate (surr.)	1	%	82	85	90	92
Tetrachloro-m-xylene (surr.)	1	%	89	101	102	99
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Semivolatile Organics						
2-Methyl-4,6-dinitrophenol	5	mg/kg	-	< 5	-	-
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	-	-
1-Chloronaphthalene	0.5	mg/kg	-	< 0.5	-	-
1-Naphthylamine	0.5	mg/kg	-	< 0.5	-	-
1,2-Dichlorobenzene	0.5	mg/kg	-	< 0.5	-	-
1,2,3-Trichlorobenzene	0.5	mg/kg	-	< 0.5	-	-
1,2,3,4-Tetrachlorobenzene	0.5	mg/kg	-	< 0.5	-	-
1,2,3,5-Tetrachlorobenzene	0.5	mg/kg	-	< 0.5	-	-
1,2,4-Trichlorobenzene	0.5	mg/kg	-	< 0.5	-	-
1,2,4,5-Tetrachlorobenzene	0.5	mg/kg	-	< 0.5	-	-
1,3-Dichlorobenzene	0.5	mg/kg	-	< 0.5	-	-
1,3,5-Trichlorobenzene	0.5	mg/kg	-	< 0.5	-	-

Client Sample ID			BH4_1_0.0-0.2m	BH4_2_0.5m	BH2_1_0-0.2	BH2_2_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S16-No16921	S16-No16922	S16-No16926	S16-No16927
Date Sampled			Nov 15, 2016	Nov 15, 2016	Nov 15, 2016	Nov 15, 2016
Test/Reference	LOR	Unit				
Semivolatile Organics						
1,4-Dichlorobenzene	0.5	mg/kg	-	< 0.5	-	-
2-Chloronaphthalene	0.5	mg/kg	-	< 0.5	-	-
2-Chlorophenol	0.5	mg/kg	-	< 0.5	-	-
2-Methylnaphthalene	0.5	mg/kg	-	< 0.5	-	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	< 0.2	-	-
2-Naphthylamine	0.5	mg/kg	-	< 0.5	-	-
2-Nitroaniline	1	mg/kg	-	< 1	-	-
2-Nitrophenol	1	mg/kg	-	< 1	-	-
2-Picoline	0.5	mg/kg	-	< 0.5	-	-
2,3,4,6-Tetrachlorophenol	0.5	mg/kg	-	< 0.5	-	-
2,4-Dichlorophenol	0.5	mg/kg	-	< 0.5	-	-
2,4-Dimethylphenol	0.5	mg/kg	-	< 0.5	-	-
2,4-Dinitrophenol	5	mg/kg	-	< 5	-	-
2,4-Dinitrotoluene	1	mg/kg	-	< 1	-	-
2,4,5-Trichlorophenol	1	mg/kg	-	< 1	-	-
2,4,6-Trichlorophenol	1.0	mg/kg	-	< 1	-	-
2,6-Dichlorophenol	0.5	mg/kg	-	< 0.5	-	-
2,6-Dinitrotoluene	1	mg/kg	-	< 1	-	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	< 0.4	-	-
3-Methylcholanthrene	0.5	mg/kg	-	< 0.5	-	-
3,3'-Dichlorobenzidine	0.5	mg/kg	-	< 0.5	-	-
4-Aminobiphenyl	0.5	mg/kg	-	< 0.5	-	-
4-Bromophenyl phenyl ether	0.5	mg/kg	-	< 0.5	-	-
4-Chloro-3-methylphenol	1.0	mg/kg	-	< 1	-	-
4-Chlorophenyl phenyl ether	0.5	mg/kg	-	< 0.5	-	-
4-Nitrophenol	5	mg/kg	-	< 5	-	-
4,4'-DDD	0.5	mg/kg	-	< 0.5	-	-
4,4'-DDE	0.5	mg/kg	-	< 0.5	-	-
4,4'-DDT	1	mg/kg	-	< 1	-	-
7,12-Dimethylbenz(a)anthracene	0.5	mg/kg	-	< 0.5	-	-
a-BHC	0.5	mg/kg	-	< 0.5	-	-
Acenaphthene	0.5	mg/kg	-	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	-	< 0.5	-	-
Acetophenone	0.5	mg/kg	-	< 0.5	-	-
Aldrin	0.5	mg/kg	-	< 0.5	-	-
Aniline	0.5	mg/kg	-	< 0.5	-	-
Anthracene	0.5	mg/kg	-	< 0.5	-	-
b-BHC	0.5	mg/kg	-	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	-	-
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	-	-
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	-	< 0.5	-	-
Benzo(g,h,i)perylene	0.5	mg/kg	-	< 0.5	-	-
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	-	-
Benzyl chloride	0.5	mg/kg	-	< 0.5	-	-
Bis(2-chloroethoxy)methane	0.5	mg/kg	-	< 0.5	-	-
Bis(2-chloroisopropyl)ether	0.5	mg/kg	-	< 0.5	-	-
Bis(2-ethylhexyl)phthalate	5	mg/kg	-	< 5	-	-
Butyl benzyl phthalate	0.5	mg/kg	-	< 0.5	-	-
Chrysene	0.5	mg/kg	-	< 0.5	-	-

Client Sample ID			BH4_1_0.0-0.2m	BH4_2_0.5m	BH2_1_0-0.2	BH2_2_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S16-No16921	S16-No16922	S16-No16926	S16-No16927
Date Sampled			Nov 15, 2016	Nov 15, 2016	Nov 15, 2016	Nov 15, 2016
Test/Reference	LOR	Unit				
Semivolatile Organics						
d-BHC	0.5	mg/kg	-	< 0.5	-	-
Di-n-butyl phthalate	0.5	mg/kg	-	< 0.5	-	-
Di-n-octyl phthalate	0.5	mg/kg	-	< 0.5	-	-
Dibenz(a,h)anthracene	0.5	mg/kg	-	< 0.5	-	-
Dibenz(a,i)acridine	0.5	mg/kg	-	< 0.5	-	-
Dibenzofuran	0.5	mg/kg	-	< 0.5	-	-
Dieldrin	0.5	mg/kg	-	< 0.5	-	-
Diethyl phthalate	0.5	mg/kg	-	< 0.5	-	-
Dimethyl phthalate	0.5	mg/kg	-	< 0.5	-	-
Dimethylaminoazobenzene	0.5	mg/kg	-	< 0.5	-	-
Diphenylamine	0.5	mg/kg	-	< 0.5	-	-
Endosulfan I	0.5	mg/kg	-	< 0.5	-	-
Endosulfan II	0.5	mg/kg	-	< 0.5	-	-
Endosulfan sulphate	0.5	mg/kg	-	< 0.5	-	-
Endrin	0.5	mg/kg	-	< 0.5	-	-
Endrin aldehyde	0.5	mg/kg	-	< 0.5	-	-
Endrin ketone	0.5	mg/kg	-	< 0.5	-	-
Fluoranthene	0.5	mg/kg	-	< 0.5	-	-
Fluorene	0.5	mg/kg	-	< 0.5	-	-
g-BHC (Lindane)	0.5	mg/kg	-	< 0.5	-	-
Heptachlor	0.5	mg/kg	-	< 0.5	-	-
Heptachlor epoxide	0.5	mg/kg	-	< 0.5	-	-
Hexachlorobenzene	0.5	mg/kg	-	< 0.5	-	-
Hexachlorobutadiene	0.5	mg/kg	-	< 0.5	-	-
Hexachlorocyclopentadiene	1	mg/kg	-	< 1	-	-
Hexachloroethane	0.5	mg/kg	-	< 0.5	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	-	-
Methoxychlor	0.5	mg/kg	-	< 0.5	-	-
N-Nitrosodibutylamine	0.5	mg/kg	-	< 0.5	-	-
N-Nitrosodipropylamine	0.5	mg/kg	-	< 0.5	-	-
N-Nitrosopiperidine	0.5	mg/kg	-	< 0.5	-	-
Naphthalene	0.5	mg/kg	-	< 0.5	-	-
Nitrobenzene	0.5	mg/kg	-	< 0.5	-	-
Pentachlorobenzene	0.5	mg/kg	-	< 0.5	-	-
Pentachloronitrobenzene	0.5	mg/kg	-	< 0.5	-	-
Pentachlorophenol	1.0	mg/kg	-	< 1	-	-
Phenanthrene	0.5	mg/kg	-	< 0.5	-	-
Phenol	0.5	mg/kg	-	< 0.5	-	-
Pronamide	0.5	mg/kg	-	< 0.5	-	-
Pyrene	0.5	mg/kg	-	< 0.5	-	-
Trifluralin	0.5	mg/kg	-	< 0.5	-	-
Phenol-d6 (surr.)	1	%	-	70	-	-
Nitrobenzene-d5 (surr.)	1	%	-	89	-	-
2-Fluorobiphenyl (surr.)	1	%	-	100	-	-
2.4.6-Tribromophenol (surr.)	1	%	-		-	-
% Moisture	1	%	6.4	18	19	20

Client Sample ID			BH4_1_0.0-0.2m	BH4_2_0.5m	BH2_1_0-0.2	BH2_2_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S16-No16921	S16-No16922	S16-No16926	S16-No16927
Date Sampled			Nov 15, 2016	Nov 15, 2016	Nov 15, 2016	Nov 15, 2016
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	< 2	3.2	< 2	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	8.6	< 5	8.7	< 5
Copper	5	mg/kg	68	11	13	7.8
Lead	5	mg/kg	27	21	30	20
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	56	< 5	< 5	< 5
Zinc	5	mg/kg	63	5.6	12	< 5

Client Sample ID			DUP1	BH2_3	BH6_5	BH4_4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S16-No16928	S16-No16929	S16-No16930	S16-No16931
Date Sampled			Nov 15, 2016	Nov 15, 2016	Nov 15, 2016	Nov 15, 2016
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	-	-
TRH C10-C14	20	mg/kg	< 20	< 20	-	-
TRH C15-C28	50	mg/kg	< 50	< 50	-	-
TRH C29-C36	50	mg/kg	< 50	< 50	-	-
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	-	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	-	-
Toluene	0.1	mg/kg	< 0.1	< 0.1	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	-	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	-	-
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	-	-
4-Bromofluorobenzene (surr.)	1	%	81	80	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	-	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	-	-
TRH C6-C10	20	mg/kg	< 20	< 20	-	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	-	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	-	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	-	-
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-

Client Sample ID			DUP1	BH2_3	BH6_5	BH4_4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S16-No16928	S16-No16929	S16-No16930	S16-No16931
Date Sampled			Nov 15, 2016	Nov 15, 2016	Nov 15, 2016	Nov 15, 2016
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	-	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	-	-
2-Fluorobiphenyl (surr.)	1	%	93	100	-	-
p-Terphenyl-d14 (surr.)	1	%	100	110	-	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	-	-
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	-	-
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	-	-
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	-	-
α-BHC	0.05	mg/kg	< 0.05	< 0.05	-	-
Aldrin	0.05	mg/kg	< 0.05	< 0.05	-	-
β-BHC	0.05	mg/kg	< 0.05	< 0.05	-	-
δ-BHC	0.05	mg/kg	< 0.05	< 0.05	-	-
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	-	-
γ-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	-	-
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	-	-
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	-	-
Toxaphene	1	mg/kg	< 1	< 1	-	-
Dibutylchloroendate (surr.)	1	%	120	123	-	-
Tetrachloro-m-xylene (surr.)	1	%	100	93	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	-	-
TRH >C16-C34	100	mg/kg	< 100	< 100	-	-
TRH >C34-C40	100	mg/kg	< 100	< 100	-	-
Chloride	10	mg/kg	-	-	39	14
pH (1:5 Aqueous extract)	0.1	pH Units	-	-	4.4	5.3
Sulphate as SO ₄ (1:5 aqueous extract)	10	mg/kg	-	-	250	170
% Moisture	1	%	19	18	21	15
Heavy Metals						
Arsenic	2	mg/kg	2.2	< 2	-	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	-	-
Chromium	5	mg/kg	9.5	15	-	-
Copper	5	mg/kg	10	20	-	-
Lead	5	mg/kg	26	41	-	-
Mercury	0.1	mg/kg	< 0.1	< 0.1	-	-

Client Sample ID			DUP1	BH2_3	BH6_5	BH4_4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S16-No16928	S16-No16929	S16-No16930	S16-No16931
Date Sampled			Nov 15, 2016	Nov 15, 2016	Nov 15, 2016	Nov 15, 2016
Test/Reference	LOR	Unit				
Heavy Metals						
Nickel	5	mg/kg	< 5	7.8	-	-
Zinc	5	mg/kg	5.4	22	-	-

Client Sample ID			BH2_5	BH2_6
Sample Matrix			Soil	Soil
Eurofins mgt Sample No.			S16-No16932	S16-No16933
Date Sampled			Nov 15, 2016	Nov 15, 2016
Test/Reference	LOR	Unit		
Chloride	10	mg/kg	< 10	32
pH (1:5 Aqueous extract)	0.1	pH Units	4.5	4.4
Sulphate as SO ₄ (1:5 aqueous extract)	10	mg/kg	100	150
% Moisture	1	%	21	20

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: TRH C6-C36 - LTM-ORG-2010	Sydney	Nov 22, 2016	14 Day
BTEX - Method: TRH C6-C40 - LTM-ORG-2010	Sydney	Nov 21, 2016	14 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Sydney	Nov 21, 2016	14 Day
Eurofins mgt Suite B4			
Polycyclic Aromatic Hydrocarbons - Method: E007 Polyaromatic Hydrocarbons (PAH)	Sydney	Nov 22, 2016	14 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Sydney	Nov 21, 2016	14 Day
Organochlorine Pesticides - Method: E013 Organochlorine Pesticides (OC)	Sydney	Nov 22, 2016	14 Day
Semivolatile Organics - Method: USEPA 8270 Semivolatile Organics	Sydney	Nov 22, 2016	14 Day
Chloride - Method: E033 /E045 /E047 Chloride	Sydney	Nov 22, 2016	28 Day
pH (1:5 Aqueous extract) - Method: LTM-GEN-7090 pH in soil by ISE	Sydney	Nov 22, 2016	7 Day
Sulphate as SO ₄ (1:5 aqueous extract) - Method: APHA 4500-SO ₄ Sulfate by FIA	Sydney	Nov 22, 2016	28 Day
Metals M8 - Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS	Sydney	Nov 21, 2016	28 Day
% Moisture - Method: LTM-GEN-7080 Moisture	Sydney	Nov 18, 2016	14 Day

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067
Project Name: USYD HEALTH(CONTAMINATION)
Project ID: GEOTLCOV25283AF

Order No.:
Report #: 524268
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: Nov 17, 2016 2:05 PM
Due: Nov 24, 2016
Priority: 5 Day
Contact Name: Alex Ructtinger

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	Chloride	HOLD	pH (1:5 Aqueous extract)	Sulphate as SO ₄ (1:5 aqueous extract)	Organochlorine Pesticides	Metals M8	Moisture Set	Semivolatile Organics	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271																
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																
Perth Laboratory - NATA Site # 18217																
External Laboratory																
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID											
1	BH4_1_0.0-0.2m	Nov 15, 2016	9:00AM	Soil	S16-No16921	X					X	X	X		X	
2	BH4_2_0.5m	Nov 15, 2016	9:15AM	Soil	S16-No16922	X					X	X	X	X	X	
3	RB1 DAY2	Nov 15, 2016	12:00PM	Water	S16-No16923						X	X			X	
4	TB	Nov 15, 2016	7:00AM	Water	S16-No16924											X
5	TS	Nov 15, 2016	7:00AM	Water	S16-No16925											X
6	BH2_1_0-0.2	Nov 15, 2016	3:30PM	Soil	S16-No16926	X					X	X	X		X	
7	BH2_2_0.5	Nov 15, 2016	3:40PM	Soil	S16-No16927	X					X	X	X		X	
8	DUP1	Nov 15, 2016	3:45PM	Soil	S16-No16928						X	X	X		X	
9	BH2_3	Nov 15, 2016	3:50PM	Soil	S16-No16929						X	X	X		X	

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Project Name: USYD HEALTH(CONTAMINATION)
Project ID: GEOTLCOV25283AF

Order No.:
Report #: 524268
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: Nov 17, 2016 2:05 PM
Due: Nov 24, 2016
Priority: 5 Day
Contact Name: Alex Ructtinger

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	Chloride	HOLD	pH (1:5 Aqueous extract)	Sulphate as SO ₄ (1:5 aqueous extract)	Organochlorine Pesticides	Metals M8	Moisture Set	Semivolatile Organics	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271																
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																
Perth Laboratory - NATA Site # 18217																
10	BH6_5	Nov 15, 2016		Soil	S16-No16930		X		X	X			X			
11	BH4_4	Nov 15, 2016		Soil	S16-No16931		X		X	X			X			
12	BH2_5	Nov 15, 2016		Soil	S16-No16932		X		X	X			X			
13	BH2_6	Nov 15, 2016		Soil	S16-No16933		X		X	X			X			
14	BH4_3	Nov 15, 2016	9:30AM	Soil	S16-No16934			X								
15	BH2_4	Nov 15, 2016	4:00PM	Soil	S16-No16935			X								
16	BH1_3_1m	Nov 15, 2016	4:00PM	Soil	S16-No16948			X								
Test Counts						4	4	3	4	4	7	7	10	1	7	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per Kilogram

ug/l: micrograms per litre

ppb: Parts per billion

org/100ml: Organisms per 100 millilitres

MPN/100mL: Most Probable Number of organisms per 100 millilitres

mg/l: milligrams per litre

ppm: Parts per million

%: Percentage

NTU: Nephelometric Turbidity Units

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs 20-130%

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4,4'-DDD	mg/kg	< 0.05			0.05	Pass	
4,4'-DDE	mg/kg	< 0.05			0.05	Pass	
4,4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Semivolatile Organics							
2-Methyl-4,6-dinitrophenol	mg/kg	< 5			5	Pass	
1-Chloronaphthalene	mg/kg	< 0.5			0.5	Pass	
1-Naphthylamine	mg/kg	< 0.5			0.5	Pass	
1,2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1,2,3-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1,2,3,4-Tetrachlorobenzene	mg/kg	< 0.5			0.5	Pass	
1,2,3,5-Tetrachlorobenzene	mg/kg	< 0.5			0.5	Pass	
1,2,4-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1,2,4,5-Tetrachlorobenzene	mg/kg	< 0.5			0.5	Pass	
1,3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1,3,5-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1,4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
2-Chloronaphthalene	mg/kg	< 0.5			0.5	Pass	
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2-Methylnaphthalene	mg/kg	< 0.5			0.5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Naphthylamine	mg/kg	< 0.5			0.5	Pass	
2-Nitroaniline	mg/kg	< 1			1	Pass	
2-Nitrophenol	mg/kg	< 1			1	Pass	
2-Picoline	mg/kg	< 0.5			0.5	Pass	
2,3,4,6-Tetrachlorophenol	mg/kg	< 0.5			0.5	Pass	
2,4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2,4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2,4-Dinitrophenol	mg/kg	< 5			5	Pass	
2,4-Dinitrotoluene	mg/kg	< 1			1	Pass	
2,4,5-Trichlorophenol	mg/kg	< 1			1	Pass	
2,4,6-Trichlorophenol	mg/kg	< 1			1.0	Pass	
2,6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2,6-Dinitrotoluene	mg/kg	< 1			1	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
3-Methylcholanthrene	mg/kg	< 0.5			0.5	Pass	
3,3'-Dichlorobenzidine	mg/kg	< 0.5			0.5	Pass	
4-Aminobiphenyl	mg/kg	< 0.5			0.5	Pass	
4-Bromophenyl phenyl ether	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1.0	Pass	
4-Chlorophenyl phenyl ether	mg/kg	< 0.5			0.5	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
4,4'-DDD	mg/kg	< 0.5			0.5	Pass	
4,4'-DDE	mg/kg	< 0.5			0.5	Pass	
4,4'-DDT	mg/kg	< 1			1	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
7.12-Dimethylbenz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
a-BHC	mg/kg	< 0.5			0.5	Pass	
Acetophenone	mg/kg	< 0.5			0.5	Pass	
Aldrin	mg/kg	< 0.5			0.5	Pass	
Aniline	mg/kg	< 0.5			0.5	Pass	
b-BHC	mg/kg	< 0.5			0.5	Pass	
Benzyl chloride	mg/kg	< 0.5			0.5	Pass	
Bis(2-chloroethoxy)methane	mg/kg	< 0.5			0.5	Pass	
Bis(2-chloroisopropyl)ether	mg/kg	< 0.5			0.5	Pass	
Bis(2-ethylhexyl)phthalate	mg/kg	< 5			5	Pass	
Butyl benzyl phthalate	mg/kg	< 0.5			0.5	Pass	
d-BHC	mg/kg	< 0.5			0.5	Pass	
Di-n-butyl phthalate	mg/kg	< 0.5			0.5	Pass	
Di-n-octyl phthalate	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,j)acridine	mg/kg	< 0.5			0.5	Pass	
Dibenzofuran	mg/kg	< 0.5			0.5	Pass	
Dieldrin	mg/kg	< 0.5			0.5	Pass	
Diethyl phthalate	mg/kg	< 0.5			0.5	Pass	
Dimethyl phthalate	mg/kg	< 0.5			0.5	Pass	
Dimethylaminoazobenzene	mg/kg	< 0.5			0.5	Pass	
Diphenylamine	mg/kg	< 0.5			0.5	Pass	
Endosulfan I	mg/kg	< 0.5			0.5	Pass	
Endosulfan II	mg/kg	< 0.5			0.5	Pass	
Endosulfan sulphate	mg/kg	< 0.5			0.5	Pass	
Endrin	mg/kg	< 0.5			0.5	Pass	
Endrin aldehyde	mg/kg	< 0.5			0.5	Pass	
Endrin ketone	mg/kg	< 0.5			0.5	Pass	
g-BHC (Lindane)	mg/kg	< 0.5			0.5	Pass	
Heptachlor	mg/kg	< 0.5			0.5	Pass	
Heptachlor epoxide	mg/kg	< 0.5			0.5	Pass	
Hexachlorobenzene	mg/kg	< 0.5			0.5	Pass	
Hexachlorobutadiene	mg/kg	< 0.5			0.5	Pass	
Hexachlorocyclopentadiene	mg/kg	< 1			1	Pass	
Hexachloroethane	mg/kg	< 0.5			0.5	Pass	
Methoxychlor	mg/kg	< 0.5			0.5	Pass	
N-Nitrosodibutylamine	mg/kg	< 0.5			0.5	Pass	
N-Nitrosodipropylamine	mg/kg	< 0.5			0.5	Pass	
N-Nitrosopiperidine	mg/kg	< 0.5			0.5	Pass	
Nitrobenzene	mg/kg	< 0.5			0.5	Pass	
Pentachlorobenzene	mg/kg	< 0.5			0.5	Pass	
Pentachloronitrobenzene	mg/kg	< 0.5			0.5	Pass	
Pentachlorophenol	mg/kg	< 1			1.0	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Pronamide	mg/kg	< 0.5			0.5	Pass	
Trifluralin	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Chloride	mg/kg	< 10			10	Pass	
Sulphate as SO ₄ (1:5 aqueous extract)	mg/kg	< 10			10	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	109			70-130	Pass	
TRH C10-C14	%	111			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	95			70-130	Pass	
Toluene	%	94			70-130	Pass	
Ethylbenzene	%	92			70-130	Pass	
m&p-Xylenes	%	94			70-130	Pass	
o-Xylene	%	94			70-130	Pass	
Xylenes - Total	%	94			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	94			70-130	Pass	
TRH C6-C10	%	103			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	85			70-130	Pass	
Acenaphthylene	%	86			70-130	Pass	
Anthracene	%	91			70-130	Pass	
Benz(a)anthracene	%	102			70-130	Pass	
Benzo(a)pyrene	%	95			70-130	Pass	
Benzo(b&j)fluoranthene	%	93			70-130	Pass	
Benzo(g,h,i)perylene	%	101			70-130	Pass	
Benzo(k)fluoranthene	%	115			70-130	Pass	
Chrysene	%	96			70-130	Pass	
Dibenz(a,h)anthracene	%	99			70-130	Pass	
Fluoranthene	%	97			70-130	Pass	
Fluorene	%	88			70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	103			70-130	Pass	
Naphthalene	%	90			70-130	Pass	
Phenanthrene	%	91			70-130	Pass	
Pyrene	%	88			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	89			70-130	Pass	
4,4'-DDD	%	94			70-130	Pass	
4,4'-DDE	%	93			70-130	Pass	
4,4'-DDT	%	108			70-130	Pass	
a-BHC	%	85			70-130	Pass	
Aldrin	%	87			70-130	Pass	
b-BHC	%	94			70-130	Pass	
d-BHC	%	85			70-130	Pass	
Dieldrin	%	92			70-130	Pass	
Endosulfan I	%	91			70-130	Pass	
Endosulfan II	%	99			70-130	Pass	
Endosulfan sulphate	%	105			70-130	Pass	
Endrin	%	93			70-130	Pass	
Endrin aldehyde	%	107			70-130	Pass	

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin ketone				%	106			70-130	Pass	
g-BHC (Lindane)				%	88			70-130	Pass	
Heptachlor				%	115			70-130	Pass	
Heptachlor epoxide				%	94			70-130	Pass	
Methoxychlor				%	102			70-130	Pass	
LCS - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions										
TRH >C10-C16			%	114				70-130	Pass	
LCS - % Recovery										
Semivolatile Organics										
1,2,4-Trichlorobenzene			%	92				70-130	Pass	
1,4-Dichlorobenzene			%	92				70-130	Pass	
2-Chlorophenol			%	130				30-130	Pass	
N-Nitrosodipropylamine			%	79				70-130	Pass	
Phenol			%	117				30-130	Pass	
LCS - % Recovery										
Chloride			%	113				70-130	Pass	
Sulphate as SO4 (1:5 aqueous extract)			%	106				70-130	Pass	
LCS - % Recovery										
Heavy Metals										
Arsenic			%	89				70-130	Pass	
Cadmium			%	99				70-130	Pass	
Chromium			%	96				70-130	Pass	
Copper			%	99				70-130	Pass	
Lead			%	89				70-130	Pass	
Mercury			%	102				70-130	Pass	
Nickel			%	92				70-130	Pass	
Zinc			%	100				70-130	Pass	
Test		Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery										
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					Result 1					
TRH C6-C9		S16-No16921	CP	%	110			70-130	Pass	
TRH C10-C14		S16-No16921	CP	%	97			70-130	Pass	
Spike - % Recovery										
BTEX					Result 1					
Benzene		S16-No16921	CP	%	95			70-130	Pass	
Toluene		S16-No16921	CP	%	92			70-130	Pass	
Ethylbenzene		S16-No16921	CP	%	91			70-130	Pass	
m&p-Xylenes		S16-No16921	CP	%	94			70-130	Pass	
o-Xylene		S16-No16921	CP	%	94			70-130	Pass	
Xylenes - Total		S16-No16921	CP	%	94			70-130	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					Result 1					
Naphthalene		S16-No16921	CP	%	88			70-130	Pass	
TRH C6-C10		S16-No16921	CP	%	110			70-130	Pass	
Spike - % Recovery										
Polycyclic Aromatic Hydrocarbons					Result 1					
Acenaphthene		S16-No19273	NCP	%	72			70-130	Pass	
Acenaphthylene		S16-No19273	NCP	%	82			70-130	Pass	
Anthracene		S16-No19273	NCP	%	81			70-130	Pass	
Benz(a)anthracene		S16-No19273	NCP	%	78			70-130	Pass	
Benzo(a)pyrene		S16-No19273	NCP	%	78			70-130	Pass	
Benzo(b&j)fluoranthene		S16-No19273	NCP	%	81			70-130	Pass	
Benzo(g,h,i)perylene		S16-No19273	NCP	%	84			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(k)fluoranthene	S16-No19273	NCP	%	101			70-130	Pass	
Chrysene	S16-No19273	NCP	%	72			70-130	Pass	
Dibenz(a,h)anthracene	S16-No19273	NCP	%	87			70-130	Pass	
Fluoranthene	S16-No16180	NCP	%	93			70-130	Pass	
Fluorene	S16-No19273	NCP	%	88			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S16-No19273	NCP	%	81			70-130	Pass	
Naphthalene	S16-No19273	NCP	%	85			70-130	Pass	
Phenanthrene	S16-No16180	NCP	%	86			70-130	Pass	
Pyrene	S16-No16180	NCP	%	84			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S16-No16921	CP	%	92			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S16-No17010	NCP	%	85			70-130	Pass	
Chromium	S16-No17010	NCP	%	96			70-130	Pass	
Copper	S16-No17010	NCP	%	119			70-130	Pass	
Mercury	S16-No17010	NCP	%	105			70-130	Pass	
Nickel	S16-No17010	NCP	%	83			70-130	Pass	
Zinc	S16-No17010	NCP	%	99			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S16-No16922	CP	%	107			70-130	Pass	
4,4'-DDD	S16-No16922	CP	%	121			70-130	Pass	
4,4'-DDE	S16-No16922	CP	%	112			70-130	Pass	
4,4'-DDT	S16-No16922	CP	%	114			70-130	Pass	
a-BHC	S16-No16922	CP	%	101			70-130	Pass	
Aldrin	S16-No16922	CP	%	106			70-130	Pass	
b-BHC	S16-No16922	CP	%	106			70-130	Pass	
d-BHC	S16-No16922	CP	%	104			70-130	Pass	
Dieldrin	S16-No16922	CP	%	110			70-130	Pass	
Endosulfan I	S16-No16922	CP	%	108			70-130	Pass	
Endosulfan II	S16-No16922	CP	%	122			70-130	Pass	
Endosulfan sulphate	S16-No16922	CP	%	120			70-130	Pass	
Endrin	S16-No16922	CP	%	108			70-130	Pass	
Endrin aldehyde	S16-No16922	CP	%	122			70-130	Pass	
Endrin ketone	S16-No16922	CP	%	127			70-130	Pass	
g-BHC (Lindane)	S16-No16922	CP	%	102			70-130	Pass	
Heptachlor	S16-No16922	CP	%	125			70-130	Pass	
Heptachlor epoxide	S16-No16922	CP	%	111			70-130	Pass	
Methoxychlor	S16-No16922	CP	%	119			70-130	Pass	
Spike - % Recovery									
Semivolatile Organics				Result 1					
1,2,4-Trichlorobenzene	S16-No08997	NCP	%	84			70-130	Pass	
1,4-Dichlorobenzene	S16-No08997	NCP	%	91			70-130	Pass	
2-Chlorophenol	S16-No08997	NCP	%	85			30-130	Pass	
N-Nitrosodipropylamine	S16-No08997	NCP	%	98			70-130	Pass	
Phenol	S16-No08997	NCP	%	72			30-130	Pass	
Spike - % Recovery									
				Result 1					
Chloride	S16-No16930	CP	%	110			70-130	Pass	
Sulphate as SO ₄ (1:5 aqueous extract)	S16-No16930	CP	%	105			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S16-No16341	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S16-No16964	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S16-No16964	NCP	mg/kg	620	470	27	30%	Pass	
TRH C29-C36	S16-No16964	NCP	mg/kg	3000	2400	24	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S16-No16341	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S16-No16341	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S16-No16341	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S16-No16341	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S16-No16341	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S16-No16341	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S16-No16341	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S16-No16341	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S16-No16921	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4,4'-DDD	S16-No16921	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4,4'-DDE	S16-No16921	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4,4'-DDT	S16-No16921	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S16-No16921	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S16-No16921	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S16-No16921	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S16-No16921	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S16-No16921	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S16-No16921	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S16-No16921	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S16-No16921	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S16-No16921	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S16-No16921	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S16-No16921	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S16-No16921	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S16-No16921	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S16-No16921	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S16-No16921	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S16-No16921	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Toxaphene	S16-No16921	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S16-No16964	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S16-No16964	NCP	mg/kg	3100	2400	25	30%	Pass	
TRH >C34-C40	S16-No16964	NCP	mg/kg	2200	1900	16	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S16-No17116	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	S16-No17116	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S16-No17116	NCP	mg/kg	25	26	4.0	30%	Pass	
Copper	S16-No16175	NCP	mg/kg	21	20	6.0	30%	Pass	
Lead	S16-No17116	NCP	mg/kg	21	23	7.0	30%	Pass	
Mercury	S16-No17116	NCP	mg/kg	0.3	0.3	1.0	30%	Pass	

Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Nickel	S16-No17116	NCP	mg/kg	13	11	14	30%	Pass
Zinc	S16-No17116	NCP	mg/kg	310	320	3.0	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(g,h,i)perylene	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Semivolatile Organics				Result 1	Result 2	RPD		
2-Methyl-4,6-dinitrophenol	S16-No16922	CP	mg/kg	< 5	< 5	<1	30%	Pass
1-Chloronaphthalene	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
1-Naphthylamine	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
1,2-Dichlorobenzene	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
1,2,3-Trichlorobenzene	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
1,2,3,4-Tetrachlorobenzene	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
1,2,3,5-Tetrachlorobenzene	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
1,2,4-Trichlorobenzene	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
1,2,4,5-Tetrachlorobenzene	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
1,3-Dichlorobenzene	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
1,3,5-Trichlorobenzene	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
1,4-Dichlorobenzene	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2-Chloronaphthalene	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2-Chlorophenol	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2-Methylnaphthalene	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2-Methylphenol (o-Cresol)	S16-No16922	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
2-Naphthylamine	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2-Nitroaniline	S16-No08932	NCP	mg/kg	< 1	< 1	<1	30%	Pass
2-Nitrophenol	S16-No16922	CP	mg/kg	< 1	< 1	<1	30%	Pass
2-Picoline	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,3,4,6-Tetrachlorophenol	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4-Dichlorophenol	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4-Dimethylphenol	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4-Dinitrophenol	S16-No16922	CP	mg/kg	< 5	< 5	<1	30%	Pass
2,4-Dinitrotoluene	S16-No08932	NCP	mg/kg	< 1	< 1	<1	30%	Pass
2,4,5-Trichlorophenol	S16-No16922	CP	mg/kg	< 1	< 1	<1	30%	Pass
2,4,6-Trichlorophenol	S16-No16922	CP	mg/kg	< 1	< 1	<1	30%	Pass
2,6-Dichlorophenol	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,6-Dinitrotoluene	S16-No08932	NCP	mg/kg	< 1	< 1	<1	30%	Pass
3&4-Methylphenol (m&p-Cresol)	S16-No16922	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
3-Methylcholanthrene	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
3,3'-Dichlorobenzidine	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass

Duplicate								
Semivolatile Organics				Result 1	Result 2	RPD		
4-Aminobiphenyl	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
4-Bromophenyl phenyl ether	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
4-Chloro-3-methylphenol	S16-No16922	CP	mg/kg	< 1	< 1	<1	30%	Pass
4-Chlorophenyl phenyl ether	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
4-Nitrophenol	S16-No16922	CP	mg/kg	< 5	< 5	<1	30%	Pass
4,4'-DDD	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
4,4'-DDE	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
4,4'-DDT	S16-No08932	NCP	mg/kg	< 1	< 1	<1	30%	Pass
7,12-Dimethylbenz(a)anthracene	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
a-BHC	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acetophenone	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aldrin	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aniline	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
b-BHC	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzyl chloride	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Bis(2-chloroethoxy)methane	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Bis(2-chloroisopropyl)ether	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Bis(2-ethylhexyl)phthalate	S16-No16922	CP	mg/kg	< 5	< 5	<1	30%	Pass
Butyl benzyl phthalate	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
d-BHC	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Di-n-butyl phthalate	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Di-n-octyl phthalate	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,j)acridine	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenzofuran	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dieldrin	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Diethyl phthalate	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dimethyl phthalate	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dimethylaminoazobenzene	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Diphenylamine	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Endosulfan I	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Endosulfan II	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Endosulfan sulphate	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Endrin	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Endrin aldehyde	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Endrin ketone	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
g-BHC (Lindane)	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Heptachlor	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Heptachlor epoxide	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Hexachlorobenzene	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Hexachlorobutadiene	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Hexachlorocyclopentadiene	S16-No08932	NCP	mg/kg	< 1	< 1	<1	30%	Pass
Hexachloroethane	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Methoxychlor	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
N-Nitrosodibutylamine	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
N-Nitrosodipropylamine	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
N-Nitrosopiperidine	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Nitrobenzene	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pentachlorobenzene	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pentachloronitrobenzene	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pentachlorophenol	S16-No16922	CP	mg/kg	< 1	< 1	<1	30%	Pass
Phenol	S16-No16922	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pronamide	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Trifluralin	S16-No08932	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass

Duplicate								
				Result 1	Result 2	RPD		
Chloride	S16-No16930	CP	mg/kg	39	39	<1	30%	Pass
Sulphate as SO ₄ (1:5 aqueous extract)	S16-No16930	CP	mg/kg	250	250	2.0	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	S16-No16931	CP	%	15	14	7.0	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
pH (1:5 Aqueous extract)	S16-No16933	CP	pH Units	4.4	4.5	pass	30%	Pass

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	No
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Nibha Vaidya	Analytical Services Manager
Nibha Vaidya	Senior Analyst-Asbestos (NSW)
Ryan Hamilton	Senior Analyst-Inorganic (NSW)
Ryan Hamilton	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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Certificate of Analysis

Coffey Geotechnics Pty Ltd Chatswood
Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or
measurements included in this document are traceable
to Australian/national standards.

Attention: Alex Ructtinger

Report **524268-W**
Project name USYD HEALTH(CONTAMINATION)
Project ID GEOTLCOV25283AF
Received Date Nov 17, 2016

Client Sample ID			RB1 DAY2	TB	TS
Sample Matrix			Water	Water	Water
Eurofins mgt Sample No.			S16-No16923	S16-No16924	S16-No16925
Date Sampled			Nov 15, 2016	Nov 15, 2016	Nov 15, 2016
Test/Reference	LOR	Unit			
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	-	< 0.02	-
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	95%
TRH C10-C14	0.05	mg/L	0.09	-	-
TRH C15-C28	0.1	mg/L	< 0.1	-	-
TRH C29-C36	0.1	mg/L	< 0.1	-	-
TRH C10-36 (Total)	0.1	mg/L	< 0.1	-	-
BTEX					
Benzene	0.001	mg/L	< 0.001	< 0.001	97%
Toluene	0.001	mg/L	< 0.001	< 0.001	99%
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	93%
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	90%
o-Xylene	0.001	mg/L	< 0.001	< 0.001	95%
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	92%
4-Bromofluorobenzene (surr.)	1	%	70	73	100
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
TRH C6-C10	0.02	mg/L	-	< 0.02	84%
Volatile Organics					
Naphthalene ^{N02}	0.01	mg/L	-	< 0.01	74%
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene ^{N02}	0.01	mg/L	< 0.01	-	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	< 0.05	-	-
TRH C6-C10	0.02	mg/L	< 0.02	-	-
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	< 0.02	-	-
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	0.001	mg/L	< 0.001	-	-
Acenaphthylene	0.001	mg/L	< 0.001	-	-
Anthracene	0.001	mg/L	< 0.001	-	-
Benz(a)anthracene	0.001	mg/L	< 0.001	-	-
Benzo(a)pyrene	0.001	mg/L	< 0.001	-	-
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001	-	-
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001	-	-
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	-	-
Chrysene	0.001	mg/L	< 0.001	-	-
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001	-	-

Client Sample ID			RB1 DAY2	TB	TS
Sample Matrix			Water	Water	Water
Eurofins mgt Sample No.			S16-No16923	S16-No16924	S16-No16925
Date Sampled			Nov 15, 2016	Nov 15, 2016	Nov 15, 2016
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons					
Fluoranthene	0.001	mg/L	< 0.001	-	-
Fluorene	0.001	mg/L	< 0.001	-	-
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	-	-
Naphthalene	0.001	mg/L	< 0.001	-	-
Phenanthrene	0.001	mg/L	< 0.001	-	-
Pyrene	0.001	mg/L	< 0.001	-	-
Total PAH*	0.001	mg/L	< 0.001	-	-
2-Fluorobiphenyl (surr.)	1	%	94	-	-
p-Terphenyl-d14 (surr.)	1	%	106	-	-
Organochlorine Pesticides					
Chlordanes - Total	0.001	mg/L	< 0.001	-	-
4,4'-DDD	0.0001	mg/L	< 0.0001	-	-
4,4'-DDE	0.0001	mg/L	< 0.0001	-	-
4,4'-DDT	0.0001	mg/L	< 0.0001	-	-
α-BHC	0.0001	mg/L	< 0.0001	-	-
Aldrin	0.0001	mg/L	< 0.0001	-	-
β-BHC	0.0001	mg/L	< 0.0001	-	-
δ-BHC	0.0001	mg/L	< 0.0001	-	-
Dieldrin	0.0001	mg/L	< 0.0001	-	-
Endosulfan I	0.0001	mg/L	< 0.0001	-	-
Endosulfan II	0.0001	mg/L	< 0.0001	-	-
Endosulfan sulphate	0.0001	mg/L	< 0.0001	-	-
Endrin	0.0001	mg/L	< 0.0001	-	-
Endrin aldehyde	0.0001	mg/L	< 0.0001	-	-
Endrin ketone	0.0001	mg/L	< 0.0001	-	-
γ-BHC (Lindane)	0.0001	mg/L	< 0.0001	-	-
Heptachlor	0.0001	mg/L	< 0.0001	-	-
Heptachlor epoxide	0.0001	mg/L	< 0.0001	-	-
Hexachlorobenzene	0.0001	mg/L	< 0.0001	-	-
Methoxychlor	0.0001	mg/L	< 0.0001	-	-
Toxaphene	0.01	mg/L	< 0.01	-	-
Dibutylchloroendate (surr.)	1	%	105	-	-
Tetrachloro-m-xylene (surr.)	1	%	81	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
TRH >C10-C16	0.05	mg/L	< 0.05	-	-
TRH >C16-C34	0.1	mg/L	< 0.1	-	-
TRH >C34-C40	0.1	mg/L	< 0.1	-	-
Heavy Metals					
Arsenic	0.001	mg/L	< 0.001	-	-
Cadmium	0.0002	mg/L	< 0.0002	-	-
Chromium	0.001	mg/L	0.001	-	-
Copper	0.001	mg/L	0.003	-	-
Lead	0.001	mg/L	0.002	-	-
Mercury	0.0001	mg/L	< 0.0001	-	-
Nickel	0.001	mg/L	0.002	-	-
Zinc	0.005	mg/L	0.009	-	-

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.

A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
TRH C6-C10 less BTEX (F1) - Method: LM-LTM-ORG-2010	Sydney	Nov 18, 2016	14 Day
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: TRH C6-C36 - LTM-ORG-2010	Sydney	Nov 21, 2016	7 Day
BTEX - Method: TRH C6-C40 - LTM-ORG-2010	Sydney	Nov 18, 2016	14 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Sydney	Nov 18, 2016	7 Day
Volatile Organics - Method: E016 Volatile Organic Compounds (VOC)	Sydney	Nov 18, 2016	7 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Sydney	Nov 18, 2016	7 Day
Eurofins mgt Suite B4			
Polycyclic Aromatic Hydrocarbons - Method: E007 Polyaromatic Hydrocarbons (PAH)	Sydney	Nov 21, 2016	7 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Sydney	Nov 21, 2016	7 Day
Organochlorine Pesticides - Method: E013 Organochlorine Pesticides (OC)	Sydney	Nov 21, 2016	7 Day
Metals M8 - Method: LTM-MET-3040 Metals in Waters by ICP-MS	Sydney	Nov 21, 2016	28 Day

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067
Project Name: USYD HEALTH(CONTAMINATION)
Project ID: GEOTLCOV25283AF

Order No.:
Report #: 524268
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: Nov 17, 2016 2:05 PM
Due: Nov 24, 2016
Priority: 5 Day
Contact Name: Alex Ructtinger

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	Chloride	HOLD	pH (1:5 Aqueous extract)	Sulphate as SO ₄ (1:5 aqueous extract)	Organochlorine Pesticides	Metals M8	Moisture Set	Semivolatile Organics	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271																
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																
Perth Laboratory - NATA Site # 18217																
External Laboratory																
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID											
1	BH4_1_0.0-0.2m	Nov 15, 2016	9:00AM	Soil	S16-No16921	X					X	X	X		X	
2	BH4_2_0.5m	Nov 15, 2016	9:15AM	Soil	S16-No16922	X					X	X	X	X	X	
3	RB1 DAY2	Nov 15, 2016	12:00PM	Water	S16-No16923						X	X			X	
4	TB	Nov 15, 2016	7:00AM	Water	S16-No16924											X
5	TS	Nov 15, 2016	7:00AM	Water	S16-No16925											X
6	BH2_1_0-0.2	Nov 15, 2016	3:30PM	Soil	S16-No16926	X					X	X	X		X	
7	BH2_2_0.5	Nov 15, 2016	3:40PM	Soil	S16-No16927	X					X	X	X		X	
8	DUP1	Nov 15, 2016	3:45PM	Soil	S16-No16928						X	X	X		X	
9	BH2_3	Nov 15, 2016	3:50PM	Soil	S16-No16929						X	X	X		X	

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Project Name: USYD HEALTH(CONTAMINATION)
Project ID: GEOTLCOV25283AF

Order No.:
Report #: 524268
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: Nov 17, 2016 2:05 PM
Due: Nov 24, 2016
Priority: 5 Day
Contact Name: Alex Ructtinger

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	Chloride	HOLD	pH (1:5 Aqueous extract)	Sulphate as SO ₄ (1:5 aqueous extract)	Organochlorine Pesticides	Metals M8	Moisture Set	Semivolatile Organics	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271																
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																
Perth Laboratory - NATA Site # 18217																
10	BH6_5	Nov 15, 2016		Soil	S16-No16930		X		X	X			X			
11	BH4_4	Nov 15, 2016		Soil	S16-No16931		X		X	X			X			
12	BH2_5	Nov 15, 2016		Soil	S16-No16932		X		X	X			X			
13	BH2_6	Nov 15, 2016		Soil	S16-No16933		X		X	X			X			
14	BH4_3	Nov 15, 2016	9:30AM	Soil	S16-No16934			X								
15	BH2_4	Nov 15, 2016	4:00PM	Soil	S16-No16935			X								
16	BH1_3_1m	Nov 15, 2016	4:00PM	Soil	S16-No16948			X								
Test Counts						4	4	3	4	4	7	7	10	1	7	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per Kilogram

mg/l: milligrams per litre

ug/l: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100ml: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs 20-130%

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
Method Blank							
Volatile Organics							
Naphthalene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g,h,i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a,h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1,2,3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/L	< 0.001			0.001	Pass	
4,4'-DDD	mg/L	< 0.0001			0.0001	Pass	
4,4'-DDE	mg/L	< 0.0001			0.0001	Pass	
4,4'-DDT	mg/L	< 0.0001			0.0001	Pass	
a-BHC	mg/L	< 0.0001			0.0001	Pass	
Aldrin	mg/L	< 0.0001			0.0001	Pass	
b-BHC	mg/L	< 0.0001			0.0001	Pass	
d-BHC	mg/L	< 0.0001			0.0001	Pass	
Dieldrin	mg/L	< 0.0001			0.0001	Pass	
Endosulfan I	mg/L	< 0.0001			0.0001	Pass	
Endosulfan II	mg/L	< 0.0001			0.0001	Pass	
Endosulfan sulphate	mg/L	< 0.0001			0.0001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin	mg/L	< 0.0001			0.0001	Pass	
Endrin aldehyde	mg/L	< 0.0001			0.0001	Pass	
Endrin ketone	mg/L	< 0.0001			0.0001	Pass	
g-BHC (Lindane)	mg/L	< 0.0001			0.0001	Pass	
Heptachlor	mg/L	< 0.0001			0.0001	Pass	
Heptachlor epoxide	mg/L	< 0.0001			0.0001	Pass	
Hexachlorobenzene	mg/L	< 0.0001			0.0001	Pass	
Methoxychlor	mg/L	< 0.0001			0.0001	Pass	
Toxaphene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	91			70-130	Pass	
TRH C10-C14	%	100			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	93			70-130	Pass	
Toluene	%	84			70-130	Pass	
Ethylbenzene	%	88			70-130	Pass	
m&p-Xylenes	%	91			70-130	Pass	
o-Xylene	%	89			70-130	Pass	
Xylenes - Total	%	90			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	%	80			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
Naphthalene	%	130			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	118			70-130	Pass	
Acenaphthylene	%	119			70-130	Pass	
Anthracene	%	110			70-130	Pass	
Benz(a)anthracene	%	123			70-130	Pass	
Benzo(a)pyrene	%	105			70-130	Pass	
Benzo(b&j)fluoranthene	%	121			70-130	Pass	
Benzo(g,h,i)perylene	%	122			70-130	Pass	
Benzo(k)fluoranthene	%	127			70-130	Pass	
Chrysene	%	112			70-130	Pass	
Dibenz(a,h)anthracene	%	104			70-130	Pass	

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Fluoranthene				%	123			70-130	Pass	
Fluorene				%	124			70-130	Pass	
Indeno(1.2.3-cd)pyrene				%	112			70-130	Pass	
Naphthalene				%	109			70-130	Pass	
Phenanthrene				%	113			70-130	Pass	
Pyrene				%	125			70-130	Pass	
LCS - % Recovery										
Organochlorine Pesticides										
Chlordanes - Total				%	100			70-130	Pass	
4.4'-DDD				%	100			70-130	Pass	
4.4'-DDE				%	100			70-130	Pass	
a-BHC				%	100			70-130	Pass	
Aldrin				%	100			70-130	Pass	
b-BHC				%	100			70-130	Pass	
d-BHC				%	100			70-130	Pass	
Dieldrin				%	100			70-130	Pass	
Endosulfan I				%	100			70-130	Pass	
Endosulfan II				%	100			70-130	Pass	
Endrin				%	100			70-130	Pass	
g-BHC (Lindane)				%	100			70-130	Pass	
Heptachlor				%	120			70-130	Pass	
Heptachlor epoxide				%	100			70-130	Pass	
LCS - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions										
TRH >C10-C16				%	97			70-130	Pass	
LCS - % Recovery										
Heavy Metals										
Arsenic				%	98			70-130	Pass	
Cadmium				%	108			70-130	Pass	
Chromium				%	93			70-130	Pass	
Copper				%	91			70-130	Pass	
Lead				%	108			70-130	Pass	
Mercury				%	113			70-130	Pass	
Nickel				%	91			70-130	Pass	
Zinc				%	101			70-130	Pass	
Test		Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery										
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					Result 1					
TRH C6-C9		S16-No15929	NCP	%	81			70-130	Pass	
Spike - % Recovery										
BTEX					Result 1					
Benzene		S16-No15929	NCP	%	87			70-130	Pass	
Toluene		S16-No15929	NCP	%	76			70-130	Pass	
Ethylbenzene		S16-No15929	NCP	%	78			70-130	Pass	
m&p-Xylenes		S16-No15929	NCP	%	80			70-130	Pass	
o-Xylene		S16-No15929	NCP	%	77			70-130	Pass	
Xylenes - Total		S16-No15929	NCP	%	79			70-130	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					Result 1					
TRH C6-C10		S16-No15929	NCP	%	71			70-130	Pass	
Spike - % Recovery										
Volatile Organics					Result 1					
Naphthalene		S16-No15929	NCP	%	106			70-130	Pass	
Spike - % Recovery										

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heavy Metals				Result 1					
Arsenic	S16-No17464	NCP	%	100			70-130	Pass	
Cadmium	S16-No17464	NCP	%	107			70-130	Pass	
Chromium	S16-No17464	NCP	%	92			70-130	Pass	
Copper	S16-No17464	NCP	%	93			70-130	Pass	
Lead	S16-No17464	NCP	%	83			70-130	Pass	
Mercury	S16-No17464	NCP	%	112			70-130	Pass	
Nickel	S16-No17464	NCP	%	92			70-130	Pass	
Zinc	S16-No17464	NCP	%	95			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S16-No15928	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S16-No15928	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S16-No15928	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S16-No15928	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S16-No15928	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S16-No15928	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	S16-No15928	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C10	S16-No15928	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Naphthalene	S16-No15928	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S16-No16940	NCP	mg/L	0.003	0.003	2.0	30%	Pass	
Cadmium	S16-No12299	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	B16-No18486	NCP	mg/L	16	16	1.0	30%	Pass	
Copper	S16-No16634	NCP	mg/L	0.014	0.013	4.0	30%	Pass	
Lead	S16-No16634	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	S16-No16634	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	S16-No16634	NCP	mg/L	0.046	0.045	2.0	30%	Pass	
Zinc	B16-No18486	NCP	mg/L	50	61	20	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	No
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Nibha Vaidya	Analytical Services Manager
Ryan Hamilton	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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Consigning Office: Chatswood		Report Results to: Alex Ructtinger		Mobile: 0427 235 873		Email: alex.ructtinger@coffey.com			
Invoices to: Cof Chat General		Phone:		Email:					
Project No: GEOTLCOV25283AF		Task No:		Laboratory		Analysis Request Section			
Project Name: Usyd Health		Laboratory: MGT							
Sampler's Name: SM		Project Manager: AR							
Special Instructions:									
Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	Suite B4 Metals M8 Asbestos (P/A) BTEX + C6-C9 OCP	Comments	
	BH1-1 0-0.2m	21/11/2016		Soil	1J, 1Z	Std	X X X		
	BH1-2 0.5m	21/11/2016		Soil	1J, 1Z	Std	X X X		
	BH1-3 1m	21/11/2016		Soil	1J, 1Z	Std			
	BH1-4 2.1m	21/11/2016		Soil	1J, 1Z	Std			
	Day 3	21/11/2016		Water	2v, 1g, 2p	Std	X X		
	BH3-1 0-0.2m	21/11/2016		Soil	1J, 1Z	Std			
	BH3-2 0.5m	21/11/2016		Soil	1J, 1Z	Std	X X X		
	BH3-3 1m	21/11/2016		Soil	1J, 1Z	Std	X X X		
	BH3-4 1.5m	21/11/2016		Soil	1J, 1Z	Std	X X X		
	Dup2	21/11/2016		Soil	1J	Std	X X X		
	Trip1	21/11/2016		Soil	1J	Std	X X X	Forward to ALS	
	BH5-1 0-0.2m	22/11/2016		Soil	1J, 1Z	Std			
	BH5-2 0.5m	22/11/2016		Soil	1J, 1Z	Std	X X X		
	BH5-3 1m	22/11/2016		Soil	1J, 1Z	Std			
	Day 4 TBP	22/11/2016		Water	2v, 1g, 2p	Std			
	TB/TS	22/11/2016		Water	2v/2v	Std	X		
				RECEIVED BY				Sample Receipt Advice: (Lab Use Only) All Samples Recieved in Good Condition ☒ All Documentation is in Proper Order ☒ Samples Received Properly Chilled ☒ Lab. Ref/Batch No. S25093	
Name: Alex Ructtinger		Date: 24/11/2016		Name: Ellen Wh		Date: 24/11/16			
Coffey		Time: 12:00		Company: ERM		Time: 1840			
Name:		Date:		Name:		Date:			
Company:		Time:		Company:		Time:			
*Container Type & Preservation Codes: P - Plastic, G- Glass Bottle, J- Glass Jar, V- Vial, Z - Ziplock bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative									

Consigning Office: Chatswood		Report Results to: <u>Alex Ructtinger</u>		Mobile: 0427 235 873	Email: <u>alex.ructtinger@coffey.com</u>
Invoices to: Cof Chat General		Phone:		Email:	

Project No: GEOTLCOV25283AF		Task No:		Laboratory	
Project Name: Usyd Health		Laboratory: MGT			
Sampler's Name: SB		Project Manager: AR			
Special Instructions:					

							Analysis Request Section												Comments		
Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	Suite B4	Metals M8	Asbestos (P/A)	BTEX + C6-C9	OCF	SVOC									
	MW01	22/11/2016		Water	2v, 1g, 2p	Std	X	X													
	TB/TS	22/11/2016		Water	2v/2v	Std				X											
	RINSATE	22/11/2016		Water	2v, 1g, 2p	Std	X	X													
	HA01_0.2-0.3	24/11/2016		Soil	1J/1Z	Std	X	X	X		X	X									
	Dup01	24/11/2016		Soil	1J	Std	X	X													
	HA01_0.5-0.6	24/11/2016		Soil	1J	Std															
	HA02_0.03-0.05	24/11/2016		Soil	1J, 1Z	Std	X	X													
	HA03_0.03-0.05	22/11/2016		Soil	1J, 1Z	Std	X	X	X		X	X									
	HA03_0.4-0.5	22/11/2016		Soil	1J, 1Z	Std	X	X													
	HA04_0.0-0.05	22/11/2016		Soil	1J, 1Z	Std	X	X													
	HA04_0.5-0.6	22/11/2016		Soil	1J, 1Z	Std			X												
	HA04_0.9-1.0	22/11/2016		Soil	1J	Std	X	X													
	HA05_0.0-0.2	22/11/2016		Soil	1J, 1Z	Std	X	X	X												
	HA05_0.5-0.6	22/11/2016		Soil	1J, 1Z	Std															
	HA06_0.0-0.2	22/11/2016		Soil	1J, 1Z	Std	X	X	X												
	HA06_0.6	22/11/2016		Soil	1J, 1Z	Std															NAPL sample

RELINQUISHED BY				RECEIVED BY				Sample Receipt Advice: (Lab Use Only)	
Name: Alex Ructtinger		Date: 24/11/2016		Name: <u>Elenwa</u>		Date: <u>24/11/16</u>		All Samples Recieved in Good Condition ☒	
Coffey		Time: 12:00		Company: <u>EPing</u>		Time: <u>1840</u>		All Documentation is in Proper Order ☒	
Name:		Date:		Name:		Date:		Samples Received Properly Chilled ☒	
Company:		Time:		Company:		Time:		Lab. Ref/Batch No. S2S093	

*Container Type & Preservation Codes: P - Plastic, G - Glass Bottle, J - Glass Jar, V - Vial, Z - Ziplock bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative

[illegible]

Ellen Wandala Gamage

From: Nibha Vaidya
Sent: Thursday, 24 November 2016 2:04 PM
To: !AU04_CAU001_EnviroSampleNSW
Subject: FW: USYD Health Samples (GEOTLCOV25283AF)

FYI

Kind Regards,

Nibha Vaidya
Phone : +61 2 9900 8415
Mobile : +61 499 900 805
Email : NibhaVaidya@eurofins.com

From: Ructtinger, Alex [<mailto:Alex.Ructtinger@coffey.com>]
Sent: Thursday, 24 November 2016 2:00 PM
To: Nibha Vaidya
Subject: USYD Health Samples (GEOTLCOV25283AF)

Hi Nibha,

I wish to advise you that your Eurofins delivery driver has picked up 4 eskys from this job today. I will send through the COC for these tonight/tomorrow when I get the chance.

Kind Regards,

Alex Ructtinger
Environmental Consultant

Level 19, Tower B - Citadel Tower,
799 Pacific Highway, Chatswood, NSW 2067

t: +61 2 9406 1052
f: +61 2 9406 1002
m: +61 427 235 873



>>> Ingenuity@coffey – it's the ideas that count

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Sample Receipt Advice

Company name: **Coffey Geotechnics Pty Ltd Chatswood**

Contact name: Alex Ructtinger
Project name: USYD HEALTH
Project ID: GEOTLCOV25283AF
COC number: Not provided
Turn around time: 5 Day
Date/Time received: Nov 24, 2016 5:25 PM
Eurofins | mgt reference: **525093**

Sample information

- ☒ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☒ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : .1 degrees Celsius.
- ☒ All samples have been received as described on the above COC.
- ☒ COC has been completed correctly.
- ☒ Attempt to chill was evident.
- ☒ Appropriately preserved sample containers have been used.
- ☒ All samples were received in good condition.
- ☒ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☒ Appropriate sample containers have been used.
- ☒ Sample containers for volatile analysis received with zero headspace.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

TRIP1 forwarded to ALS | No bags received for BH1_2 0.5m, BH1_4 2.1m and BH5_3 1m asbestos (P/A) conducted from jar | Extra jar received for HA02_0.5-0.6 placed on HOLD| Extra set of TB & TS received placed HOLD

Contact notes

If you have any questions with respect to these samples please contact:

Nibha Vaidya on Phone : +61 (2) 9900 8400 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Alex Ructtinger - alexander.ructtinger@coffey.com.

Note: A copy of these results will also be delivered to the general Coffey Geotechnics Pty Ltd Chatswood email address.

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067
Project Name: USYD HEALTH
Project ID: GEOTLCOV25283AF

Order No.:
Report #: 525093
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: Nov 24, 2016 5:25 PM
Due: Dec 1, 2016
Priority: 5 Day
Contact Name: Alex Ructtinger

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence / Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8 filtered	Moisture Set	Semivolatile Organics	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271														
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
10	TS	Nov 22, 2016		Water	S16-No23050									X
11	MW01	Nov 22, 2016		Water	S16-No23051					X			X	
12	TB	Nov 22, 2016		Water	S16-No23052									X
13	TS	Nov 22, 2016		Water	S16-No23053									X
14	RINSATE	Nov 22, 2016		Water	S16-No23054				X				X	
15	HA01_0.2-0.3	Nov 24, 2016		Soil	S16-No23055	X		X	X		X	X	X	
16	DUP01	Nov 24, 2016		Soil	S16-No23056				X		X		X	
17	HA02_0.03-0.05	Nov 24, 2016		Soil	S16-No23057				X		X		X	
18	HA03_0.03-0.05	Nov 22, 2016		Soil	S16-No23058	X		X	X		X	X	X	
19	HA03_0.4-0.5	Nov 22, 2016		Soil	S16-No23059				X		X		X	
20	HA04_0.0-0.05	Nov 22, 2016		Soil	S16-No23060				X		X		X	

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Received: Nov 24, 2016 5:25 PM
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Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8 filtered	Moisture Set	Semivolatile Organics	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271														
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
21	HA04_0.5-0.6	Nov 22, 2016		Soil	S16-No23061	X								
22	HA04_0.9-1.0	Nov 22, 2016		Soil	S16-No23062				X		X		X	
23	HA05_0.0-0.2	Nov 22, 2016		Soil	S16-No23063	X			X		X		X	
24	HA06_0.0-0.2	Nov 22, 2016		Soil	S16-No23064	X			X		X		X	
25	HA06_0.9-1.0	Nov 22, 2016		Soil	S16-No23065				X		X		X	
26	HA07_0.1-0.2	Nov 24, 2016		Soil	S16-No23066	X			X		X		X	
27	HA07_0.5-0.6	Nov 24, 2016		Soil	S16-No23067				X		X		X	
28	HA08_0.1-0.2	Nov 24, 2016		Soil	S16-No23068	X		X	X		X		X	
29	HA08_0.5-0.6	Nov 24, 2016		Soil	S16-No23069				X		X		X	
30	BH1_3_1m	Nov 21, 2016		Soil	S16-No23070		X							
31	BH1_4_2.1m	Nov 21, 2016		Soil	S16-No23071		X							
32	BH3_1_0-0.2m	Nov 21, 2016		Soil	S16-No23072		X							

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
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Order No.:
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Priority: 5 Day
Contact Name: Alex Ructtinger

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8 filtered	Moisture Set	Semivolatile Organics	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271														
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
33	BH5_1_0-0.2m	Nov 22, 2016		Soil	S16-No23073		X							
34	BH5_3_1m	Nov 22, 2016		Soil	S16-No23074		X							
35	DAY4 TBP	Nov 22, 2016		Water	S16-No23075		X							
36	HA01_0.5-0.6	Nov 24, 2016		Soil	S16-No23076		X							
37	HA05_0.5-0.6	Nov 24, 2016		Soil	S16-No23077		X							
38	HA06_0.6	Nov 22, 2016		Soil	S16-No23078		X							
39	HA07_0.9-1.0	Nov 24, 2016		Soil	S16-No23079		X							
40	HA08_0.9-1.0	Nov 24, 2016		Soil	S16-No23080		X							
41	HA02_0.5-0.6	Nov 21, 2016		Soil	S16-No23180		X							
42	TB	Nov 21, 2016		Water	S16-No23192		X							
43	TS	Nov 21, 2016		Water	S16-No23193		X							
Test Counts						14	14	7	23	1	21	2	24	4

Certificate of Analysis



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025—Testing
 The results of the tests, calibrations and/or
 measurements included in this document are traceable
 to Australian/national standards.

Coffey Geotechnics Pty Ltd Chatswood
Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Attention: Alex Ructtinger
Report 525093-AID
Project Name USYD HEALTH
Project ID GEOTLCOV25283AF
Received Date Nov 24, 2016
Date Reported Dec 01, 2016

Methodology:

Asbestos ID	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. Bulk samples include building materials, soils and ores.
Subsampling Soil Samples	The whole sample submitted is first dried and then sieved through a 10mm sieve followed by a 2mm sieve. All fibrous matter viz greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) Iron ores - Sampling and Sample preparation procedures is employed. Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis in accordance with AS 4964-2004.
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated and where required interfering organic fibres or matter may be removed by treating the sample for several hours at a temperature not exceeding $400 \pm 30^{\circ}\text{C}$. The resultant material is then ground and examined in accordance with AS 4964-2004.
Limit of Reporting	The nominal detection limit of the AS4964 method is around 0.01%. The examination of large sample sizes (at least 500 ml is recommended) may improve the likelihood of identifying asbestos material in the greater than 2 mm fraction. The NEPM screening level of 0.001% w/w asbestos in soil for FA and AF (i.e. non-bonded/friable asbestos) only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. NOTE: NATA News, September 2011 – page 34, states, “Weighing of fibres is problematic and can lead to loss of fibres and potential exposure for laboratory analysts. To request laboratories to report information which is outside the scope of AS 4964-2004 and the scope of their accreditation is misleading and is most unwise” therefore such values reported are outside the scope of Eurofins mgt NATA accreditation as designated by an asterisk.

Project Name USYD HEALTH
Project ID GEOTLCOV25283AF
Date Sampled Nov 21, 2016 to Nov 24, 2016
Report 525093-AID

Client Sample ID	Eurofins mgt Sample No.	Date Sampled	Sample Description	Result
BH1_1_0-0.2m	16-No23041	Nov 21, 2016	Approximate Sample 337g Sample consisted of: Dark brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
BH1_2_0.5m	16-No23042	Nov 21, 2016	Approximate Sample 64g Sample consisted of: Dark brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
BH3_2_0.5m	16-No23044	Nov 21, 2016	Approximate Sample 314g Sample consisted of: Grey coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
BH3_3_1m	16-No23045	Nov 21, 2016	Approximate Sample 311g Sample consisted of: Dark brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
BH3_4_1.5m	16-No23046	Nov 21, 2016	Approximate Sample 345g Sample consisted of: Red brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
DUP2	16-No23047	Nov 21, 2016	Approximate Sample 66g Sample consisted of: Red brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
BH5_2_0.5m	16-No23048	Nov 22, 2016	Approximate Sample 324g Sample consisted of: Red brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
HA01_0.2-0.3	16-No23055	Nov 24, 2016	Approximate Sample 436g Sample consisted of: Grey coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
HA03_0.03-0.05	16-No23058	Nov 22, 2016	Approximate Sample 305g Sample consisted of: Grey coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
HA04_0.5-0.6	16-No23061	Nov 22, 2016	Approximate Sample 375g Sample consisted of: Grey coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.

Client Sample ID	Eurofins mgt Sample No.	Date Sampled	Sample Description	Result
HA05_0.0-0.2	16-No23063	Nov 22, 2016	Approximate Sample 431g Sample consisted of: Grey coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
HA06_0.0-0.2	16-No23064	Nov 22, 2016	Approximate Sample 299g Sample consisted of: Grey coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
HA07_0.1-0.2	16-No23066	Nov 24, 2016	Approximate Sample 248g Sample consisted of: Grey coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
HA08_0.1-0.2	16-No23068	Nov 24, 2016	Approximate Sample 396g Sample consisted of: Grey coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported. A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Nov 25, 2016	Indefinite

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067
Project Name: USYD HEALTH
Project ID: GEOTLCOV25283AF

Order No.:
Report #: 525093
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: Nov 24, 2016 5:25 PM
Due: Dec 1, 2016
Priority: 5 Day
Contact Name: Alex Ructtinger

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8 filtered	Moisture Set	Semivolatile Organics	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271														
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
External Laboratory														
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID									
1	BH1_1_0-0.2m	Nov 21, 2016		Soil	S16-No23041	X		X	X		X		X	
2	BH1_2_0.5m	Nov 21, 2016		Soil	S16-No23042	X			X		X		X	
3	DAY3	Nov 21, 2016		Water	S16-No23043				X				X	
4	BH3_2_0.5m	Nov 21, 2016		Soil	S16-No23044	X		X	X		X		X	
5	BH3_3_1m	Nov 21, 2016		Soil	S16-No23045	X			X		X		X	
6	BH3_4_1.5m	Nov 21, 2016		Soil	S16-No23046	X		X	X		X		X	
7	DUP2	Nov 21, 2016		Soil	S16-No23047	X		X	X		X		X	
8	BH5_2_0.5m	Nov 22, 2016		Soil	S16-No23048	X			X		X		X	
9	TB	Nov 22, 2016		Water	S16-No23049									X

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
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NSW 2067
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Priority: 5 Day
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Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence / Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8 filtered	Moisture Set	Semivolatile Organics	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271														
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
10	TS	Nov 22, 2016		Water	S16-No23050									X
11	MW01	Nov 22, 2016		Water	S16-No23051					X			X	
12	TB	Nov 22, 2016		Water	S16-No23052									X
13	TS	Nov 22, 2016		Water	S16-No23053									X
14	RINSATE	Nov 22, 2016		Water	S16-No23054				X				X	
15	HA01_0.2-0.3	Nov 24, 2016		Soil	S16-No23055	X		X	X		X	X	X	
16	DUP01	Nov 24, 2016		Soil	S16-No23056				X		X		X	
17	HA02_0.03-0.05	Nov 24, 2016		Soil	S16-No23057				X		X		X	
18	HA03_0.03-0.05	Nov 22, 2016		Soil	S16-No23058	X		X	X		X	X	X	
19	HA03_0.4-0.5	Nov 22, 2016		Soil	S16-No23059				X		X		X	
20	HA04_0.0-0.05	Nov 22, 2016		Soil	S16-No23060				X		X		X	

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Sample Detail						Asbestos Absence / Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8 filtered	Moisture Set	Semivolatile Organics	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271														
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
21	HA04_0.5-0.6	Nov 22, 2016		Soil	S16-No23061	X								
22	HA04_0.9-1.0	Nov 22, 2016		Soil	S16-No23062				X		X		X	
23	HA05_0.0-0.2	Nov 22, 2016		Soil	S16-No23063	X			X		X		X	
24	HA06_0.0-0.2	Nov 22, 2016		Soil	S16-No23064	X			X		X		X	
25	HA06_0.9-1.0	Nov 22, 2016		Soil	S16-No23065				X		X		X	
26	HA07_0.1-0.2	Nov 24, 2016		Soil	S16-No23066	X			X		X		X	
27	HA07_0.5-0.6	Nov 24, 2016		Soil	S16-No23067				X		X		X	
28	HA08_0.1-0.2	Nov 24, 2016		Soil	S16-No23068	X		X	X		X		X	
29	HA08_0.5-0.6	Nov 24, 2016		Soil	S16-No23069				X		X		X	
30	BH1_3_1m	Nov 21, 2016		Soil	S16-No23070		X							
31	BH1_4_2.1m	Nov 21, 2016		Soil	S16-No23071		X							
32	BH3_1_0-0.2m	Nov 21, 2016		Soil	S16-No23072		X							

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Sample Detail						Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8 filtered	Moisture Set	Semivolatile Organics	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271														
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
33	BH5_1_0-0.2m	Nov 22, 2016		Soil	S16-No23073		X							
34	BH5_3_1m	Nov 22, 2016		Soil	S16-No23074		X							
35	DAY4 TBP	Nov 22, 2016		Water	S16-No23075		X							
36	HA01_0.5-0.6	Nov 24, 2016		Soil	S16-No23076		X							
37	HA05_0.5-0.6	Nov 24, 2016		Soil	S16-No23077		X							
38	HA06_0.6	Nov 22, 2016		Soil	S16-No23078		X							
39	HA07_0.9-1.0	Nov 24, 2016		Soil	S16-No23079		X							
40	HA08_0.9-1.0	Nov 24, 2016		Soil	S16-No23080		X							
41	HA02_0.5-0.6	Nov 21, 2016		Soil	S16-No23180		X							
42	TB	Nov 21, 2016		Water	S16-No23192		X							
43	TS	Nov 21, 2016		Water	S16-No23193		X							
Test Counts						14	14	7	23	1	21	2	24	4

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w: weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
COC	Chain of custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Western Australia Department of Health
NOHSC	National Occupational Health and Safety Commission
ACM	Bonded asbestos-containing material means any material containing more than 1% asbestos and comprises asbestos-containing-material which is in sound condition, although possibly broken or fragmented, and where the asbestos is bound in a matrix such as cement or resin. Common examples of ACM include but are not limited to: pipe and boiler insulation, sprayed-on fireproofing, troweled-on acoustical plaster, floor tile and mastic, floor linoleum, transite shingles, roofing materials, wall and ceiling plaster, ceiling tiles, and gasket materials. This term is restricted to material that cannot pass a 7 mm x 7 mm sieve. This sieve size is selected because it approximates the thickness of common asbestos cement sheeting and for fragments to be smaller than this would imply a high degree of damage and hence potential for fibre release.
FA	FA comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. This type of friable asbestos is defined here as asbestos material that is in a degraded condition such that it can be broken or crumbled by hand pressure. This material is typically unbonded or was previously bonded and is now significantly degraded (crumbling).
PACM	Presumed Asbestos-Containing Material means thermal system insulation and surfacing material found in buildings, vessels, and vessel sections constructed no later than 1980 that are assumed to contain greater than one percent asbestos but have not been sampled or analyzed to verify or negate the presence of asbestos.
AF	Asbestos fines (AF) are defined as free fibres, or fibre bundles, smaller than 7mm. It is the free fibres which present the greatest risk to human health, although very small fibres (< 5 microns in length) are not considered to be such a risk. AF also includes small fragments of bonded ACM that pass through a 7 mm x 7 mm sieve. (Note that for bonded ACM fragments to pass through a 7 mm x 7 mm sieve implies a substantial degree of damage which increases the potential for fibre release.)
AC	Asbestos cement means a mixture of cement and asbestos fibres (typically 90:10 ratios).

Comments

No23042 and No23047; The samples received were not collected in an approved asbestos bag and was therefore sub-sampled from the 250mL glass jar. Valid sub-sampling procedures were applied so as to ensure that the sub-samples to be analysed accurately represented the samples received.

No23042 and No23047; The samples received were not collected in an approved asbestos bag and was therefore sub-sampled from the 250mL glass jar. Valid sub-sampling procedures were applied so as to ensure that the sub-samples to be analysed accurately represented the samples received.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Authorised by:

Nibha Vaidya

Senior Analyst-Asbestos (NSW)



Glenn Jackson

National Operations Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

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Certificate of Analysis

Coffey Geotechnics Pty Ltd Chatswood
Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or
measurements included in this document are traceable
to Australian/national standards.

Attention: Alex Ructtinger

Report 525093-S
Project name USYD HEALTH
Project ID GEOTLCOV25283AF
Received Date Nov 24, 2016

Client Sample ID			BH1_1 0-0.2m	BH1_2 0.5m	BH3_2 0.5m	BH3_3 1m
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S16-No23041	S16-No23042	S16-No23044	S16-No23045
Date Sampled			Nov 21, 2016	Nov 21, 2016	Nov 21, 2016	Nov 21, 2016
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	340	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	450	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	790	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	68	69	62	59
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	1.7	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	2.0	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	2.3	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	1.3	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	1.7	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	1.7	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	0.9	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	0.6	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	1.2	< 0.5	< 0.5	< 0.5

Client Sample ID			BH1_1_0-0.2m	BH1_2_0.5m	BH3_2_0.5m	BH3_3_1m
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S16-No23041	S16-No23042	S16-No23044	S16-No23045
Date Sampled			Nov 21, 2016	Nov 21, 2016	Nov 21, 2016	Nov 21, 2016
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	0.7	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	8.6	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	94	102	92	85
p-Terphenyl-d14 (surr.)	1	%	76	84	90	81
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	< 0.1	-
4,4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	-
4,4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	-
4,4'-DDT	0.05	mg/kg	< 0.05	-	< 0.05	-
α-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
β-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
δ-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	-
γ-BHC (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	-
Methoxychlor	0.2	mg/kg	< 0.2	-	< 0.2	-
Toxaphene	1	mg/kg	< 1	-	< 1	-
Dibutylchloroendate (surr.)	1	%	97	-	133	-
Tetrachloro-m-xylene (surr.)	1	%	77	-	97	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	610	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	340	< 100	< 100	< 100
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	54	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	8.5	17	18	18
Copper	5	mg/kg	33	11	9.7	14
Lead	5	mg/kg	29	29	32	22
Mercury	0.1	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	11	5.1	7.9	< 5
Zinc	5	mg/kg	47	28	21	11
% Moisture	1	%	16	20	20	25

Client Sample ID			BH3_4_1.5m Soil	DUP2 Soil	BH5_2_0.5m Soil	HA01_0.2-0.3 Soil
Sample Matrix			S16-No23046	S16-No23047	S16-No23048	S16-No23055
Eurofins mgt Sample No.			Nov 21, 2016	Nov 21, 2016	Nov 22, 2016	Nov 24, 2016
Date Sampled						
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	80	< 50	54	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	80	< 50	54	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	58	66	64	68
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.7	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	0.6	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	0.6	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	0.6	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	0.6	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	1.9	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	2.1	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	1.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	7.9	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	89	86	77	96
p-Terphenyl-d14 (surr.)	1	%	86	90	89	100
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	-	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	-	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	-	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	-	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	-	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	-	< 0.05

Client Sample ID			BH3_4_1.5m	DUP2	BH5_2_0.5m	HA01_0.2-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S16-No23046	S16-No23047	S16-No23048	S16-No23055
Date Sampled			Nov 21, 2016	Nov 21, 2016	Nov 22, 2016	Nov 24, 2016
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
d-BHC	0.05	mg/kg	< 0.05	< 0.05	-	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	-	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	-	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	-	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	-	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	-	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	-	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	-	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	-	< 0.2
Toxaphene	1	mg/kg	< 1	< 1	-	< 1
Dibutylchlorendate (surr.)	1	%	INT	INT	-	INT
Tetrachloro-m-xylene (surr.)	1	%	83	63	-	78
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Semivolatile Organics						
2-Methyl-4,6-dinitrophenol	5	mg/kg	-	-	-	< 5
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	-	1.2
1-Chloronaphthalene	0.5	mg/kg	-	-	-	< 0.5
1-Naphthylamine	0.5	mg/kg	-	-	-	< 0.5
1,2-Dichlorobenzene	0.5	mg/kg	-	-	-	< 0.5
1,2,3-Trichlorobenzene	0.5	mg/kg	-	-	-	< 0.5
1,2,3,4-Tetrachlorobenzene	0.5	mg/kg	-	-	-	< 0.5
1,2,3,5-Tetrachlorobenzene	0.5	mg/kg	-	-	-	< 0.5
1,2,4-Trichlorobenzene	0.5	mg/kg	-	-	-	< 0.5
1,2,4,5-Tetrachlorobenzene	0.5	mg/kg	-	-	-	< 0.5
1,3-Dichlorobenzene	0.5	mg/kg	-	-	-	< 0.5
1,3,5-Trichlorobenzene	0.5	mg/kg	-	-	-	< 0.5
1,4-Dichlorobenzene	0.5	mg/kg	-	-	-	< 0.5
2-Chloronaphthalene	0.5	mg/kg	-	-	-	< 0.5
2-Chlorophenol	0.5	mg/kg	-	-	-	< 0.5
2-Methylnaphthalene	0.5	mg/kg	-	-	-	< 0.5
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	-	-	< 0.2
2-Naphthylamine	0.5	mg/kg	-	-	-	< 0.5
2-Nitroaniline	1	mg/kg	-	-	-	< 1
2-Nitrophenol	1	mg/kg	-	-	-	< 1
2-Picoline	0.5	mg/kg	-	-	-	< 0.5
2,3,4,6-Tetrachlorophenol	0.5	mg/kg	-	-	-	< 0.5
2,4-Dichlorophenol	0.5	mg/kg	-	-	-	< 0.5
2,4-Dimethylphenol	0.5	mg/kg	-	-	-	< 0.5
2,4-Dinitrophenol	5	mg/kg	-	-	-	< 5
2,4-Dinitrotoluene	1	mg/kg	-	-	-	< 1

Client Sample ID			BH3_4_1.5m	DUP2	BH5_2_0.5m	HA01_0.2-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S16-No23046	S16-No23047	S16-No23048	S16-No23055
Date Sampled			Nov 21, 2016	Nov 21, 2016	Nov 22, 2016	Nov 24, 2016
Test/Reference	LOR	Unit				
Semivolatile Organics						
2,4,5-Trichlorophenol	1	mg/kg	-	-	-	< 1
2,4,6-Trichlorophenol	1.0	mg/kg	-	-	-	< 1
2,6-Dichlorophenol	0.5	mg/kg	-	-	-	< 0.5
2,6-Dinitrotoluene	1	mg/kg	-	-	-	< 1
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	-	-	< 0.4
3-Methylcholanthrene	0.5	mg/kg	-	-	-	< 0.5
3,3'-Dichlorobenzidine	0.5	mg/kg	-	-	-	< 0.5
4-Aminobiphenyl	0.5	mg/kg	-	-	-	< 0.5
4-Bromophenyl phenyl ether	0.5	mg/kg	-	-	-	< 0.5
4-Chloro-3-methylphenol	1.0	mg/kg	-	-	-	< 1
4-Chlorophenyl phenyl ether	0.5	mg/kg	-	-	-	< 0.5
4-Nitrophenol	5	mg/kg	-	-	-	< 5
4,4'-DDD	0.5	mg/kg	-	-	-	< 0.5
4,4'-DDE	0.5	mg/kg	-	-	-	< 0.5
4,4'-DDT	1	mg/kg	-	-	-	< 1
7,12-Dimethylbenz(a)anthracene	0.5	mg/kg	-	-	-	< 0.5
a-BHC	0.5	mg/kg	-	-	-	< 0.5
Acenaphthene	0.5	mg/kg	-	-	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	-	-	< 0.5
Acetophenone	0.5	mg/kg	-	-	-	< 0.5
Aldrin	0.5	mg/kg	-	-	-	< 0.5
Aniline	0.5	mg/kg	-	-	-	< 0.5
Anthracene	0.5	mg/kg	-	-	-	< 0.5
b-BHC	0.5	mg/kg	-	-	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	-	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	-	-	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	-	-	-	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	-	-	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	-	-	< 0.5
Benzyl chloride	0.5	mg/kg	-	-	-	< 0.5
Bis(2-chloroethoxy)methane	0.5	mg/kg	-	-	-	< 0.5
Bis(2-chloroisopropyl)ether	0.5	mg/kg	-	-	-	< 0.5
Bis(2-ethylhexyl)phthalate	5	mg/kg	-	-	-	< 5
Butyl benzyl phthalate	0.5	mg/kg	-	-	-	< 0.5
Chrysene	0.5	mg/kg	-	-	-	< 0.5
d-BHC	0.5	mg/kg	-	-	-	< 0.5
Di-n-butyl phthalate	0.5	mg/kg	-	-	-	< 0.5
Di-n-octyl phthalate	0.5	mg/kg	-	-	-	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	-	-	-	< 0.5
Dibenz(a,j)acridine	0.5	mg/kg	-	-	-	< 0.5
Dibenzofuran	0.5	mg/kg	-	-	-	< 0.5
Dieldrin	0.5	mg/kg	-	-	-	< 0.5
Diethyl phthalate	0.5	mg/kg	-	-	-	< 0.5
Dimethyl phthalate	0.5	mg/kg	-	-	-	< 0.5
Dimethylaminoazobenzene	0.5	mg/kg	-	-	-	< 0.5
Diphenylamine	0.5	mg/kg	-	-	-	< 0.5
Endosulfan I	0.5	mg/kg	-	-	-	< 0.5
Endosulfan II	0.5	mg/kg	-	-	-	< 0.5
Endosulfan sulphate	0.5	mg/kg	-	-	-	< 0.5

Client Sample ID Sample Matrix Eurofins mgt Sample No. Date Sampled Test/Reference	LOR	Unit	BH3_4_1.5m Soil S16-No23046 Nov 21, 2016	DUP2 Soil S16-No23047 Nov 21, 2016	BH5_2_0.5m Soil S16-No23048 Nov 22, 2016	HA01_0.2-0.3 Soil S16-No23055 Nov 24, 2016
Semivolatile Organics						
Endrin	0.5	mg/kg	-	-	-	< 0.5
Endrin aldehyde	0.5	mg/kg	-	-	-	< 0.5
Endrin ketone	0.5	mg/kg	-	-	-	< 0.5
Fluoranthene	0.5	mg/kg	-	-	-	< 0.5
Fluorene	0.5	mg/kg	-	-	-	< 0.5
g-BHC (Lindane)	0.5	mg/kg	-	-	-	< 0.5
Heptachlor	0.5	mg/kg	-	-	-	< 0.5
Heptachlor epoxide	0.5	mg/kg	-	-	-	< 0.5
Hexachlorobenzene	0.5	mg/kg	-	-	-	< 0.5
Hexachlorobutadiene	0.5	mg/kg	-	-	-	< 0.5
Hexachlorocyclopentadiene	1	mg/kg	-	-	-	< 1
Hexachloroethane	0.5	mg/kg	-	-	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	-	< 0.5
Methoxychlor	0.5	mg/kg	-	-	-	< 0.5
N-Nitrosodibutylamine	0.5	mg/kg	-	-	-	< 0.5
N-Nitrosodipropylamine	0.5	mg/kg	-	-	-	< 0.5
N-Nitrosopiperidine	0.5	mg/kg	-	-	-	< 0.5
Naphthalene	0.5	mg/kg	-	-	-	< 0.5
Nitrobenzene	0.5	mg/kg	-	-	-	< 0.5
Pentachlorobenzene	0.5	mg/kg	-	-	-	< 0.5
Pentachloronitrobenzene	0.5	mg/kg	-	-	-	< 0.5
Pentachlorophenol	1.0	mg/kg	-	-	-	< 1
Phenanthrene	0.5	mg/kg	-	-	-	< 0.5
Phenol	0.5	mg/kg	-	-	-	< 0.5
Pronamide	0.5	mg/kg	-	-	-	< 0.5
Pyrene	0.5	mg/kg	-	-	-	< 0.5
Trifluralin	0.5	mg/kg	-	-	-	< 0.5
Phenol-d6 (surr.)	1	%	-	-	-	48
Nitrobenzene-d5 (surr.)	1	%	-	-	-	72
2-Fluorobiphenyl (surr.)	1	%	-	-	-	96
2.4.6-Tribromophenol (surr.)	1	%	-	-	-	82
Heavy Metals						
Arsenic	2	mg/kg	40	11	< 2	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	20	19	19	17
Copper	5	mg/kg	13	6.8	48	82
Lead	5	mg/kg	30	27	21	17
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	6.2	< 5	51	70
Zinc	5	mg/kg	21	10	37	52
% Moisture	1	%	20	19	24	7.2

Client Sample ID			DUP01	HA02_0.03-0.05	HA03_0.03-0.05	HA03_0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S16-No23056	S16-No23057	S16-No23058	S16-No23059
Date Sampled			Nov 24, 2016	Nov 24, 2016	Nov 22, 2016	Nov 22, 2016
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	190	61	< 50	< 50
TRH C29-C36	50	mg/kg	100	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	290	61	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	62	67	63	65
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	3.9	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	4.2	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	4.4	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	1.3	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	3.3	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	2.9	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	3.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	1.4	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	1.7	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	3.1	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	7.6	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	1.2	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	4.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	7.2	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	37.7	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	88	86	93	95
p-Terphenyl-d14 (surr.)	1	%	84	89	99	94
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	< 0.1	-
4,4'-DDD	0.05	mg/kg	-	-	< 0.05	-
4,4'-DDE	0.05	mg/kg	-	-	< 0.05	-
4,4'-DDT	0.05	mg/kg	-	-	< 0.05	-
α-BHC	0.05	mg/kg	-	-	< 0.05	-
Aldrin	0.05	mg/kg	-	-	< 0.05	-

Client Sample ID			DUP01	HA02_0.03-0.05	HA03_0.03-0.05	HA03_0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S16-No23056	S16-No23057	S16-No23058	S16-No23059
Date Sampled			Nov 24, 2016	Nov 24, 2016	Nov 22, 2016	Nov 22, 2016
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
b-BHC	0.05	mg/kg	-	-	< 0.05	-
d-BHC	0.05	mg/kg	-	-	< 0.05	-
Dieldrin	0.05	mg/kg	-	-	< 0.05	-
Endosulfan I	0.05	mg/kg	-	-	< 0.05	-
Endosulfan II	0.05	mg/kg	-	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	-	-	< 0.05	-
Endrin	0.05	mg/kg	-	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	-	-	< 0.05	-
Endrin ketone	0.05	mg/kg	-	-	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	-	-	< 0.05	-
Heptachlor	0.05	mg/kg	-	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	-	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	-	-	< 0.05	-
Methoxychlor	0.2	mg/kg	-	-	< 0.2	-
Toxaphene	1	mg/kg	-	-	< 1	-
Dibutylchloredate (surr.)	1	%	-	-	118	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	99	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	240	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Semivolatile Organics						
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	-	< 5	-
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	1.2	-
1-Chloronaphthalene	0.5	mg/kg	-	-	< 0.5	-
1-Naphthylamine	0.5	mg/kg	-	-	< 0.5	-
1,2-Dichlorobenzene	0.5	mg/kg	-	-	< 0.5	-
1,2,3-Trichlorobenzene	0.5	mg/kg	-	-	< 0.5	-
1,2,3,4-Tetrachlorobenzene	0.5	mg/kg	-	-	< 0.5	-
1,2,3,5-Tetrachlorobenzene	0.5	mg/kg	-	-	< 0.5	-
1,2,4-Trichlorobenzene	0.5	mg/kg	-	-	< 0.5	-
1,2,4,5-Tetrachlorobenzene	0.5	mg/kg	-	-	< 0.5	-
1,3-Dichlorobenzene	0.5	mg/kg	-	-	< 0.5	-
1,3,5-Trichlorobenzene	0.5	mg/kg	-	-	< 0.5	-
1,4-Dichlorobenzene	0.5	mg/kg	-	-	< 0.5	-
2-Chloronaphthalene	0.5	mg/kg	-	-	< 0.5	-
2-Chlorophenol	0.5	mg/kg	-	-	< 0.5	-
2-Methylnaphthalene	0.5	mg/kg	-	-	< 0.5	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	-	< 0.2	-
2-Naphthylamine	0.5	mg/kg	-	-	< 0.5	-
2-Nitroaniline	1	mg/kg	-	-	< 1	-
2-Nitrophenol	1	mg/kg	-	-	< 1	-
2-Picoline	0.5	mg/kg	-	-	< 0.5	-
2,3,4,6-Tetrachlorophenol	0.5	mg/kg	-	-	< 0.5	-
2,4-Dichlorophenol	0.5	mg/kg	-	-	< 0.5	-
2,4-Dimethylphenol	0.5	mg/kg	-	-	< 0.5	-
2,4-Dinitrophenol	5	mg/kg	-	-	< 5	-

Client Sample ID			DUP01	HA02_0.03-0.05	HA03_0.03-0.05	HA03_0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S16-No23056	S16-No23057	S16-No23058	S16-No23059
Date Sampled			Nov 24, 2016	Nov 24, 2016	Nov 22, 2016	Nov 22, 2016
Test/Reference	LOR	Unit				
Semivolatile Organics						
2,4-Dinitrotoluene	1	mg/kg	-	-	< 1	-
2,4,5-Trichlorophenol	1	mg/kg	-	-	< 1	-
2,4,6-Trichlorophenol	1.0	mg/kg	-	-	< 1	-
2,6-Dichlorophenol	0.5	mg/kg	-	-	< 0.5	-
2,6-Dinitrotoluene	1	mg/kg	-	-	< 1	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	-	< 0.4	-
3-Methylcholanthrene	0.5	mg/kg	-	-	< 0.5	-
3,3'-Dichlorobenzidine	0.5	mg/kg	-	-	< 0.5	-
4-Aminobiphenyl	0.5	mg/kg	-	-	< 0.5	-
4-Bromophenyl phenyl ether	0.5	mg/kg	-	-	< 0.5	-
4-Chloro-3-methylphenol	1.0	mg/kg	-	-	< 1	-
4-Chlorophenyl phenyl ether	0.5	mg/kg	-	-	< 0.5	-
4-Nitrophenol	5	mg/kg	-	-	< 5	-
4,4'-DDD	0.5	mg/kg	-	-	< 0.5	-
4,4'-DDE	0.5	mg/kg	-	-	< 0.5	-
4,4'-DDT	1	mg/kg	-	-	< 1	-
7,12-Dimethylbenz(a)anthracene	0.5	mg/kg	-	-	< 0.5	-
a-BHC	0.5	mg/kg	-	-	< 0.5	-
Acenaphthene	0.5	mg/kg	-	-	< 0.5	-
Acenaphthylene	0.5	mg/kg	-	-	< 0.5	-
Acetophenone	0.5	mg/kg	-	-	< 0.5	-
Aldrin	0.5	mg/kg	-	-	< 0.5	-
Aniline	0.5	mg/kg	-	-	< 0.5	-
Anthracene	0.5	mg/kg	-	-	< 0.5	-
b-BHC	0.5	mg/kg	-	-	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	-	-	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	-	-	< 0.5	-
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	-	-	< 0.5	-
Benzo(g,h,i)perylene	0.5	mg/kg	-	-	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	-	-	< 0.5	-
Benzyl chloride	0.5	mg/kg	-	-	< 0.5	-
Bis(2-chloroethoxy)methane	0.5	mg/kg	-	-	< 0.5	-
Bis(2-chloroisopropyl)ether	0.5	mg/kg	-	-	< 0.5	-
Bis(2-ethylhexyl)phthalate	5	mg/kg	-	-	< 5	-
Butyl benzyl phthalate	0.5	mg/kg	-	-	< 0.5	-
Chrysene	0.5	mg/kg	-	-	< 0.5	-
d-BHC	0.5	mg/kg	-	-	< 0.5	-
Di-n-butyl phthalate	0.5	mg/kg	-	-	< 0.5	-
Di-n-octyl phthalate	0.5	mg/kg	-	-	< 0.5	-
Dibenz(a,h)anthracene	0.5	mg/kg	-	-	< 0.5	-
Dibenz(a,j)acridine	0.5	mg/kg	-	-	< 0.5	-
Dibenzofuran	0.5	mg/kg	-	-	< 0.5	-
Dieldrin	0.5	mg/kg	-	-	< 0.5	-
Diethyl phthalate	0.5	mg/kg	-	-	< 0.5	-
Dimethyl phthalate	0.5	mg/kg	-	-	< 0.5	-
Dimethylaminoazobenzene	0.5	mg/kg	-	-	< 0.5	-
Diphenylamine	0.5	mg/kg	-	-	< 0.5	-
Endosulfan I	0.5	mg/kg	-	-	< 0.5	-
Endosulfan II	0.5	mg/kg	-	-	< 0.5	-

Client Sample ID			DUP01	HA02_0.03-0.05	HA03_0.03-0.05	HA03_0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S16-No23056	S16-No23057	S16-No23058	S16-No23059
Date Sampled			Nov 24, 2016	Nov 24, 2016	Nov 22, 2016	Nov 22, 2016
Test/Reference	LOR	Unit				
Semivolatile Organics						
Endosulfan sulphate	0.5	mg/kg	-	-	< 0.5	-
Endrin	0.5	mg/kg	-	-	< 0.5	-
Endrin aldehyde	0.5	mg/kg	-	-	< 0.5	-
Endrin ketone	0.5	mg/kg	-	-	< 0.5	-
Fluoranthene	0.5	mg/kg	-	-	< 0.5	-
Fluorene	0.5	mg/kg	-	-	< 0.5	-
g-BHC (Lindane)	0.5	mg/kg	-	-	< 0.5	-
Heptachlor	0.5	mg/kg	-	-	< 0.5	-
Heptachlor epoxide	0.5	mg/kg	-	-	< 0.5	-
Hexachlorobenzene	0.5	mg/kg	-	-	< 0.5	-
Hexachlorobutadiene	0.5	mg/kg	-	-	< 0.5	-
Hexachlorocyclopentadiene	1	mg/kg	-	-	< 1	-
Hexachloroethane	0.5	mg/kg	-	-	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	< 0.5	-
Methoxychlor	0.5	mg/kg	-	-	< 0.5	-
N-Nitrosodibutylamine	0.5	mg/kg	-	-	< 0.5	-
N-Nitrosodipropylamine	0.5	mg/kg	-	-	< 0.5	-
N-Nitrosopiperidine	0.5	mg/kg	-	-	< 0.5	-
Naphthalene	0.5	mg/kg	-	-	< 0.5	-
Nitrobenzene	0.5	mg/kg	-	-	< 0.5	-
Pentachlorobenzene	0.5	mg/kg	-	-	< 0.5	-
Pentachloronitrobenzene	0.5	mg/kg	-	-	< 0.5	-
Pentachlorophenol	1.0	mg/kg	-	-	< 1	-
Phenanthrene	0.5	mg/kg	-	-	< 0.5	-
Phenol	0.5	mg/kg	-	-	< 0.5	-
Pronamide	0.5	mg/kg	-	-	< 0.5	-
Pyrene	0.5	mg/kg	-	-	< 0.5	-
Trifluralin	0.5	mg/kg	-	-	< 0.5	-
Phenol-d6 (surr.)	1	%	-	-	56	-
Nitrobenzene-d5 (surr.)	1	%	-	-	78	-
2-Fluorobiphenyl (surr.)	1	%	-	-	93	-
2.4.6-Tribromophenol (surr.)	1	%	-	-	56	-
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	4.5	7.5
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	17	17	10	29
Copper	5	mg/kg	76	76	76	< 5
Lead	5	mg/kg	27	17	160	29
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	62	64	7.6	6.7
Zinc	5	mg/kg	57	55	54	19
% Moisture	1	%	8.8	8.0	17	25

Client Sample ID			HA04_0.0-0.05	HA04_0.9-1.0	HA05_0.0-0.2	HA06_0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S16-No23060	S16-No23062	S16-No23063	S16-No23064
Date Sampled			Nov 22, 2016	Nov 22, 2016	Nov 22, 2016	Nov 22, 2016
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	69	77	230	200
TRH C29-C36	50	mg/kg	55	< 50	170	220
TRH C10-36 (Total)	50	mg/kg	124	77	400	420
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	65	65	67	66
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	59
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	1.3	< 0.5	< 0.5	2.9
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	1.6	0.6	0.6	3.2
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.8	1.2	1.2	3.4
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.7
Benz(a)anthracene	0.5	mg/kg	0.9	< 0.5	< 0.5	2.2
Benzo(a)pyrene	0.5	mg/kg	1.0	< 0.5	< 0.5	2.1
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	1.1	< 0.5	< 0.5	2.9
Benzo(g,h,i)perylene	0.5	mg/kg	0.6	< 0.5	< 0.5	1.3
Benzo(k)fluoranthene	0.5	mg/kg	0.6	< 0.5	< 0.5	1.7
Chrysene	0.5	mg/kg	0.9	< 0.5	< 0.5	1.9
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	1.9	< 0.5	0.6	4.6
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	1.1
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	1.3	< 0.5	< 0.5	2.5
Pyrene	0.5	mg/kg	1.9	< 0.5	0.6	4.5
Total PAH*	0.5	mg/kg	10.2	< 0.5	1.2	26
2-Fluorobiphenyl (surr.)	1	%	89	108	87	94
p-Terphenyl-d14 (surr.)	1	%	87	129	95	107
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	59
TRH >C16-C34	100	mg/kg	< 100	< 100	290	320
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	140

Client Sample ID			HA04_0.0-0.05	HA04_0.9-1.0	HA05_0.0-0.2	HA06_0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S16-No23060	S16-No23062	S16-No23063	S16-No23064
Date Sampled			Nov 22, 2016	Nov 22, 2016	Nov 22, 2016	Nov 22, 2016
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	7.4	11	6.5	13
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	7.8	39	13	15
Copper	5	mg/kg	17	< 5	18	130
Lead	5	mg/kg	110	42	55	510
Mercury	0.1	mg/kg	0.2	0.1	< 0.1	0.3
Nickel	5	mg/kg	< 5	5.9	6.8	7.3
Zinc	5	mg/kg	68	39	58	180
% Moisture	1	%	6.8	20	6.5	14

Client Sample ID			HA06_0.9-1.0	HA07_0.1-0.2	HA07_0.5-0.6	HA08_0.1-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S16-No23065	S16-No23066	S16-No23067	S16-No23068
Date Sampled			Nov 22, 2016	Nov 24, 2016	Nov 24, 2016	Nov 24, 2016
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	230	86	60
TRH C29-C36	50	mg/kg	< 50	260	< 50	99
TRH C10-36 (Total)	50	mg/kg	< 50	490	86	159
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	65	67	68	67
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	82	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	1.6	3.4	1.4
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	1.9	3.6	1.7
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	2.1	3.9	1.9
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	0.7	0.7	< 0.5
Anthracene	0.5	mg/kg	< 0.5	0.6	0.9	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	1.2	2.3	0.9
Benzo(a)pyrene	0.5	mg/kg	< 0.5	1.2	2.5	1.0
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	1.4	3.1	1.8
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	0.7	1.4	0.9
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	1.0	1.7	0.8
Chrysene	0.5	mg/kg	< 0.5	1.1	2.2	1.0

Client Sample ID			HA06_0.9-1.0	HA07_0.1-0.2	HA07_0.5-0.6	HA08_0.1-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S16-No23065	S16-No23066	S16-No23067	S16-No23068
Date Sampled			Nov 22, 2016	Nov 24, 2016	Nov 24, 2016	Nov 24, 2016
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	2.8	4.9	2.0
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	0.6	1.2	0.7
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	2.6	3.2	0.9
Pyrene	0.5	mg/kg	< 0.5	2.4	4.7	2.1
Total PAH*	0.5	mg/kg	< 0.5	16.3	28.8	12.1
2-Fluorobiphenyl (surr.)	1	%	96	84	83	119
p-Terphenyl-d14 (surr.)	1	%	97	79	78	108
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	-	< 0.1
4,4'-DDD	0.05	mg/kg	-	-	-	< 0.05
4,4'-DDE	0.05	mg/kg	-	-	-	< 0.05
4,4'-DDT	0.05	mg/kg	-	-	-	< 0.05
α-BHC	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
β-BHC	0.05	mg/kg	-	-	-	< 0.05
δ-BHC	0.05	mg/kg	-	-	-	< 0.05
Dieldrin	0.05	mg/kg	-	-	-	< 0.05
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.05
Endrin ketone	0.05	mg/kg	-	-	-	< 0.05
γ-BHC (Lindane)	0.05	mg/kg	-	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.2	mg/kg	-	-	-	< 0.2
Toxaphene	1	mg/kg	-	-	-	< 1
Dibutylchloroendate (surr.)	1	%	-	-	-	113
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	93
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	82	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	370	120	130
TRH >C34-C40	100	mg/kg	< 100	180	< 100	< 100
Heavy Metals						
Arsenic	2	mg/kg	6.0	6.7	12	5.6
Cadmium	0.4	mg/kg	< 0.4	0.7	< 0.4	< 0.4
Chromium	5	mg/kg	18	25	19	28
Copper	5	mg/kg	14	58	240	43
Lead	5	mg/kg	29	180	350	140
Mercury	0.1	mg/kg	< 0.1	0.3	0.2	0.2
Nickel	5	mg/kg	5.4	15	5.7	18
Zinc	5	mg/kg	15	400	160	170
% Moisture	1	%	20	22	16	14

Client Sample ID			HA08_0.5-0.6
Sample Matrix			Soil
Eurofins mgt Sample No.			S16-No23069
Date Sampled			Nov 24, 2016
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	66
TRH C10-36 (Total)	50	mg/kg	66
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	68
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene ^{N02}	0.5	mg/kg	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.7
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	0.8
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5
Fluoranthene	0.5	mg/kg	1.0
Fluorene	0.5	mg/kg	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	0.6
Pyrene	0.5	mg/kg	1.0
Total PAH*	0.5	mg/kg	3.4
2-Fluorobiphenyl (surr.)	1	%	114
p-Terphenyl-d14 (surr.)	1	%	109
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
TRH >C10-C16	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100

Client Sample ID			HA08_0.5-0.6
Sample Matrix			Soil
Eurofins mgt Sample No.			S16-No23069
Date Sampled			Nov 24, 2016
Test/Reference	LOR	Unit	
Heavy Metals			
Arsenic	2	mg/kg	2.9
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	8.0
Copper	5	mg/kg	17
Lead	5	mg/kg	64
Mercury	0.1	mg/kg	0.1
Nickel	5	mg/kg	< 5
Zinc	5	mg/kg	50
% Moisture	1	%	9.5

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.

A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Nov 30, 2016	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	Nov 29, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Nov 29, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Eurofins mgt Suite B4			
Polycyclic Aromatic Hydrocarbons	Sydney	Nov 30, 2016	14 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Nov 30, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Organochlorine Pesticides	Sydney	Nov 30, 2016	14 Day
- Method: E013 Organochlorine Pesticides (OC)			
Semivolatile Organics	Sydney	Nov 30, 2016	14 Day
- Method: USEPA 8270 Semivolatile Organics			
Metals M8	Sydney	Nov 29, 2016	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			
% Moisture	Sydney	Nov 25, 2016	14 Day
- Method: LTM-GEN-7080 Moisture			

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Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067
Project Name: USYD HEALTH
Project ID: GEOTLCOV25283AF

Order No.:
Report #: 525093
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: Nov 24, 2016 5:25 PM
Due: Dec 1, 2016
Priority: 5 Day
Contact Name: Alex Ructtinger

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8 filtered	Moisture Set	Semivolatile Organics	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271														
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
External Laboratory														
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID									
1	BH1_1_0-0.2m	Nov 21, 2016		Soil	S16-No23041	X		X	X		X		X	
2	BH1_2_0.5m	Nov 21, 2016		Soil	S16-No23042	X			X		X		X	
3	DAY3	Nov 21, 2016		Water	S16-No23043				X				X	
4	BH3_2_0.5m	Nov 21, 2016		Soil	S16-No23044	X		X	X		X		X	
5	BH3_3_1m	Nov 21, 2016		Soil	S16-No23045	X			X		X		X	
6	BH3_4_1.5m	Nov 21, 2016		Soil	S16-No23046	X		X	X		X		X	
7	DUP2	Nov 21, 2016		Soil	S16-No23047	X		X	X		X		X	
8	BH5_2_0.5m	Nov 22, 2016		Soil	S16-No23048	X			X		X		X	
9	TB	Nov 22, 2016		Water	S16-No23049									X

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Sample Detail						Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8 filtered	Moisture Set	Semivolatile Organics	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271														
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
10	TS	Nov 22, 2016		Water	S16-No23050									X
11	MW01	Nov 22, 2016		Water	S16-No23051					X			X	
12	TB	Nov 22, 2016		Water	S16-No23052									X
13	TS	Nov 22, 2016		Water	S16-No23053									X
14	RINSATE	Nov 22, 2016		Water	S16-No23054				X				X	
15	HA01_0.2-0.3	Nov 24, 2016		Soil	S16-No23055	X		X	X		X	X	X	
16	DUP01	Nov 24, 2016		Soil	S16-No23056				X		X		X	
17	HA02_0.03-0.05	Nov 24, 2016		Soil	S16-No23057				X		X		X	
18	HA03_0.03-0.05	Nov 22, 2016		Soil	S16-No23058	X		X	X		X	X	X	
19	HA03_0.4-0.5	Nov 22, 2016		Soil	S16-No23059				X		X		X	
20	HA04_0.0-0.05	Nov 22, 2016		Soil	S16-No23060				X		X		X	

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Sample Detail						Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8 filtered	Moisture Set	Semivolatile Organics	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271														
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
21	HA04_0.5-0.6	Nov 22, 2016		Soil	S16-No23061	X								
22	HA04_0.9-1.0	Nov 22, 2016		Soil	S16-No23062				X		X		X	
23	HA05_0.0-0.2	Nov 22, 2016		Soil	S16-No23063	X			X		X		X	
24	HA06_0.0-0.2	Nov 22, 2016		Soil	S16-No23064	X			X		X		X	
25	HA06_0.9-1.0	Nov 22, 2016		Soil	S16-No23065				X		X		X	
26	HA07_0.1-0.2	Nov 24, 2016		Soil	S16-No23066	X			X		X		X	
27	HA07_0.5-0.6	Nov 24, 2016		Soil	S16-No23067				X		X		X	
28	HA08_0.1-0.2	Nov 24, 2016		Soil	S16-No23068	X		X	X		X		X	
29	HA08_0.5-0.6	Nov 24, 2016		Soil	S16-No23069				X		X		X	
30	BH1_3_1m	Nov 21, 2016		Soil	S16-No23070		X							
31	BH1_4_2.1m	Nov 21, 2016		Soil	S16-No23071		X							
32	BH3_1_0-0.2m	Nov 21, 2016		Soil	S16-No23072		X							

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Received: Nov 24, 2016 5:25 PM
Due: Dec 1, 2016
Priority: 5 Day
Contact Name: Alex Ructtinger

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Sample Detail						Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8 filtered	Moisture Set	Semivolatile Organics	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271														
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
33	BH5_1_0-0.2m	Nov 22, 2016		Soil	S16-No23073		X							
34	BH5_3_1m	Nov 22, 2016		Soil	S16-No23074		X							
35	DAY4 TBP	Nov 22, 2016		Water	S16-No23075		X							
36	HA01_0.5-0.6	Nov 24, 2016		Soil	S16-No23076		X							
37	HA05_0.5-0.6	Nov 24, 2016		Soil	S16-No23077		X							
38	HA06_0.6	Nov 22, 2016		Soil	S16-No23078		X							
39	HA07_0.9-1.0	Nov 24, 2016		Soil	S16-No23079		X							
40	HA08_0.9-1.0	Nov 24, 2016		Soil	S16-No23080		X							
41	HA02_0.5-0.6	Nov 21, 2016		Soil	S16-No23180		X							
42	TB	Nov 21, 2016		Water	S16-No23192		X							
43	TS	Nov 21, 2016		Water	S16-No23193		X							
Test Counts						14	14	7	23	1	21	2	24	4

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per Kilogram

mg/l: milligrams per litre

ug/l: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100ml: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs 20-130%

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4,4'-DDD	mg/kg	< 0.05			0.05	Pass	
4,4'-DDE	mg/kg	< 0.05			0.05	Pass	
4,4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Semivolatile Organics							
2-Methyl-4,6-dinitrophenol	mg/kg	< 5			5	Pass	
1-Chloronaphthalene	mg/kg	< 0.5			0.5	Pass	
1-Naphthylamine	mg/kg	< 0.5			0.5	Pass	
1,2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1,2,3-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1,2,3,4-Tetrachlorobenzene	mg/kg	< 0.5			0.5	Pass	
1,2,3,5-Tetrachlorobenzene	mg/kg	< 0.5			0.5	Pass	
1,2,4-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1,2,4,5-Tetrachlorobenzene	mg/kg	< 0.5			0.5	Pass	
1,3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1,3,5-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1,4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
2-Chloronaphthalene	mg/kg	< 0.5			0.5	Pass	
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2-Methylnaphthalene	mg/kg	< 0.5			0.5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Naphthylamine	mg/kg	< 0.5			0.5	Pass	
2-Nitroaniline	mg/kg	< 1			1	Pass	
2-Nitrophenol	mg/kg	< 1			1	Pass	
2-Picoline	mg/kg	< 0.5			0.5	Pass	
2,3,4,6-Tetrachlorophenol	mg/kg	< 0.5			0.5	Pass	
2,4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2,4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2,4-Dinitrophenol	mg/kg	< 5			5	Pass	
2,4-Dinitrotoluene	mg/kg	< 1			1	Pass	
2,4,5-Trichlorophenol	mg/kg	< 1			1	Pass	
2,4,6-Trichlorophenol	mg/kg	< 1			1.0	Pass	
2,6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2,6-Dinitrotoluene	mg/kg	< 1			1	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
3-Methylcholanthrene	mg/kg	< 0.5			0.5	Pass	
3,3'-Dichlorobenzidine	mg/kg	< 0.5			0.5	Pass	
4-Aminobiphenyl	mg/kg	< 0.5			0.5	Pass	
4-Bromophenyl phenyl ether	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1.0	Pass	
4-Chlorophenyl phenyl ether	mg/kg	< 0.5			0.5	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
4,4'-DDD	mg/kg	< 0.5			0.5	Pass	
4,4'-DDE	mg/kg	< 0.5			0.5	Pass	
4,4'-DDT	mg/kg	< 1			1	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
7.12-Dimethylbenz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
a-BHC	mg/kg	< 0.5			0.5	Pass	
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Acetophenone	mg/kg	< 0.5			0.5	Pass	
Aldrin	mg/kg	< 0.5			0.5	Pass	
Aniline	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
b-BHC	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&i)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzyl chloride	mg/kg	< 0.5			0.5	Pass	
Bis(2-chloroethoxy)methane	mg/kg	< 0.5			0.5	Pass	
Bis(2-chloroisopropyl)ether	mg/kg	< 0.5			0.5	Pass	
Bis(2-ethylhexyl)phthalate	mg/kg	< 5			5	Pass	
Butyl benzyl phthalate	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
d-BHC	mg/kg	< 0.5			0.5	Pass	
Di-n-butyl phthalate	mg/kg	< 0.5			0.5	Pass	
Di-n-octyl phthalate	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,j)acridine	mg/kg	< 0.5			0.5	Pass	
Dibenzofuran	mg/kg	< 0.5			0.5	Pass	
Dieldrin	mg/kg	< 0.5			0.5	Pass	
Diethyl phthalate	mg/kg	< 0.5			0.5	Pass	
Dimethyl phthalate	mg/kg	< 0.5			0.5	Pass	
Dimethylaminoazobenzene	mg/kg	< 0.5			0.5	Pass	
Diphenylamine	mg/kg	< 0.5			0.5	Pass	
Endosulfan I	mg/kg	< 0.5			0.5	Pass	
Endosulfan II	mg/kg	< 0.5			0.5	Pass	
Endosulfan sulphate	mg/kg	< 0.5			0.5	Pass	
Endrin	mg/kg	< 0.5			0.5	Pass	
Endrin aldehyde	mg/kg	< 0.5			0.5	Pass	
Endrin ketone	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
g-BHC (Lindane)	mg/kg	< 0.5			0.5	Pass	
Heptachlor	mg/kg	< 0.5			0.5	Pass	
Heptachlor epoxide	mg/kg	< 0.5			0.5	Pass	
Hexachlorobenzene	mg/kg	< 0.5			0.5	Pass	
Hexachlorobutadiene	mg/kg	< 0.5			0.5	Pass	
Hexachlorocyclopentadiene	mg/kg	< 1			1	Pass	
Hexachloroethane	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Methoxychlor	mg/kg	< 0.5			0.5	Pass	
N-Nitrosodibutylamine	mg/kg	< 0.5			0.5	Pass	
N-Nitrosodipropylamine	mg/kg	< 0.5			0.5	Pass	
N-Nitrosopiperidine	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Nitrobenzene	mg/kg	< 0.5			0.5	Pass	
Pentachlorobenzene	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Pentachloronitrobenzene	mg/kg	< 0.5			0.5	Pass	
Pentachlorophenol	mg/kg	< 1			1.0	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Pronamide	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Trifluralin	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	99			70-130	Pass	
TRH C10-C14	%	108			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	111			70-130	Pass	
Toluene	%	107			70-130	Pass	
Ethylbenzene	%	101			70-130	Pass	
m&p-Xylenes	%	101			70-130	Pass	
o-Xylene	%	100			70-130	Pass	
Xylenes - Total	%	100			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	113			70-130	Pass	
TRH C6-C10	%	105			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	109			70-130	Pass	
Acenaphthylene	%	99			70-130	Pass	
Anthracene	%	99			70-130	Pass	
Benz(a)anthracene	%	86			70-130	Pass	
Benzo(a)pyrene	%	92			70-130	Pass	
Benzo(b&j)fluoranthene	%	91			70-130	Pass	
Benzo(g,h,i)perylene	%	93			70-130	Pass	
Benzo(k)fluoranthene	%	106			70-130	Pass	
Chrysene	%	119			70-130	Pass	
Dibenz(a,h)anthracene	%	88			70-130	Pass	
Fluoranthene	%	92			70-130	Pass	
Fluorene	%	102			70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	90			70-130	Pass	
Naphthalene	%	120			70-130	Pass	
Phenanthrene	%	96			70-130	Pass	
Pyrene	%	94			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	88			70-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4.4'-DDD			%	80			70-130	Pass	
4.4'-DDE			%	100			70-130	Pass	
4.4'-DDT			%	71			70-130	Pass	
a-BHC			%	89			70-130	Pass	
Aldrin			%	103			70-130	Pass	
b-BHC			%	87			70-130	Pass	
d-BHC			%	89			70-130	Pass	
Dieldrin			%	90			70-130	Pass	
Endosulfan I			%	91			70-130	Pass	
Endosulfan II			%	94			70-130	Pass	
Endosulfan sulphate			%	102			70-130	Pass	
Endrin			%	72			70-130	Pass	
Endrin aldehyde			%	105			70-130	Pass	
Endrin ketone			%	96			70-130	Pass	
g-BHC (Lindane)			%	84			70-130	Pass	
Heptachlor			%	107			70-130	Pass	
Heptachlor epoxide			%	90			70-130	Pass	
Methoxychlor			%	100			70-130	Pass	
Toxaphene			%	109			70-130	Pass	
LCS - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions									
TRH >C10-C16		%	111				70-130	Pass	
LCS - % Recovery									
Semivolatile Organics									
1.2.4-Trichlorobenzene		%	78				70-130	Pass	
1.4-Dichlorobenzene		%	76				70-130	Pass	
2-Chlorophenol		%	123				30-130	Pass	
2-Methylphenol (o-Cresol)		%	71				30-130	Pass	
2-Nitrophenol		%	75				30-130	Pass	
2.6-Dichlorophenol		%	104				30-130	Pass	
3&4-Methylphenol (m&p-Cresol)		%	97				30-130	Pass	
Acenaphthene		%	82				70-130	Pass	
Pentachlorophenol		%	77				30-130	Pass	
Phenol		%	104				30-130	Pass	
Pyrene		%	87				70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic		%	77				70-130	Pass	
Cadmium		%	83				70-130	Pass	
Chromium		%	83				70-130	Pass	
Copper		%	87				70-130	Pass	
Lead		%	76				70-130	Pass	
Mercury		%	108				70-130	Pass	
Nickel		%	83				70-130	Pass	
Zinc		%	83				70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S16-No22601	NCP	%	96			70-130	Pass	
4.4'-DDD	S16-No22601	NCP	%	93			70-130	Pass	
4.4'-DDE	S16-No22601	NCP	%	106			70-130	Pass	
4.4'-DDT	S16-No22601	NCP	%	71			70-130	Pass	
a-BHC	S16-No22601	NCP	%	85			70-130	Pass	
Aldrin	S16-No22601	NCP	%	105			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
b-BHC	S16-No22601	NCP	%	87			70-130	Pass	
d-BHC	S16-No22601	NCP	%	92			70-130	Pass	
Dieldrin	S16-No22601	NCP	%	98			70-130	Pass	
Endosulfan I	S16-No22601	NCP	%	98			70-130	Pass	
Endosulfan II	S16-No22601	NCP	%	105			70-130	Pass	
Endosulfan sulphate	S16-No22601	NCP	%	116			70-130	Pass	
Endrin	S16-No22601	NCP	%	71			70-130	Pass	
Endrin aldehyde	S16-No22601	NCP	%	118			70-130	Pass	
Endrin ketone	S16-No22601	NCP	%	107			70-130	Pass	
g-BHC (Lindane)	S16-No22601	NCP	%	79			70-130	Pass	
Heptachlor	S16-No22601	NCP	%	105			70-130	Pass	
Heptachlor epoxide	S16-No22601	NCP	%	103			70-130	Pass	
Methoxychlor	S16-No22601	NCP	%	97			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Copper	S16-No22724	NCP	%	99			70-130	Pass	
Lead	S16-No22606	NCP	%	93			70-130	Pass	
Zinc	S16-No22606	NCP	%	74			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	S16-No23044	CP	%	100			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S16-No23044	CP	%	110			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S16-No23047	CP	%	95			70-130	Pass	
Acenaphthylene	S16-No23047	CP	%	86			70-130	Pass	
Anthracene	S16-No23047	CP	%	83			70-130	Pass	
Benz(a)anthracene	S16-No23047	CP	%	79			70-130	Pass	
Benzo(a)pyrene	S16-No23047	CP	%	90			70-130	Pass	
Benzo(b&j)fluoranthene	S16-No23047	CP	%	85			70-130	Pass	
Benzo(g,h,i)perylene	S16-No23047	CP	%	87			70-130	Pass	
Benzo(k)fluoranthene	S16-No23047	CP	%	94			70-130	Pass	
Chrysene	S16-No23047	CP	%	99			70-130	Pass	
Dibenz(a,h)anthracene	S16-No23047	CP	%	86			70-130	Pass	
Fluoranthene	S16-No23047	CP	%	83			70-130	Pass	
Fluorene	S16-No23047	CP	%	89			70-130	Pass	
Indeno(1,2,3-cd)pyrene	S16-No23047	CP	%	86			70-130	Pass	
Naphthalene	S16-No23047	CP	%	105			70-130	Pass	
Phenanthrene	S16-No23047	CP	%	85			70-130	Pass	
Pyrene	S16-No23047	CP	%	83			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S16-No23060	CP	%	88			70-130	Pass	
TRH C10-C14	S16-No23060	CP	%	83			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S16-No23060	CP	%	96			70-130	Pass	
Toluene	S16-No23060	CP	%	91			70-130	Pass	
Ethylbenzene	S16-No23060	CP	%	85			70-130	Pass	
m&p-Xylenes	S16-No23060	CP	%	85			70-130	Pass	
o-Xylene	S16-No23060	CP	%	85			70-130	Pass	
Xylenes - Total	S16-No23060	CP	%	85			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S16-No23060	CP	%	87			70-130	Pass	
TRH C6-C10	S16-No23060	CP	%	95			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S16-No23060	CP	%	91			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S16-No23064	CP	%	105			70-130	Pass	
Cadmium	S16-No23064	CP	%	102			70-130	Pass	
Chromium	S16-No23064	CP	%	102			70-130	Pass	
Mercury	S16-No23064	CP	%	113			70-130	Pass	
Nickel	S16-No23064	CP	%	103			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S16-No23041	CP	%	16	17	5.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S16-No23042	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S16-No23042	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S16-No23042	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S16-No23042	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S16-No23042	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S16-No23042	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S16-No23042	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S16-No23042	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S16-No23042	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S16-No23042	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S16-No23042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S16-No23042	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S16-No23042	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S16-No23042	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S16-No23042	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S16-No23044	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4,4'-DDD	S16-No23044	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4,4'-DDE	S16-No23044	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4,4'-DDT	S16-No23044	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S16-No23044	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S16-No23044	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S16-No23044	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S16-No23044	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S16-No23044	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S16-No23044	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S16-No23044	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Endosulfan sulphate	S16-No23044	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	S16-No23044	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	S16-No23044	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S16-No23044	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-BHC (Lindane)	S16-No23044	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S16-No23044	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S16-No23044	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S16-No23044	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S16-No23044	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Toxaphene	S16-No23044	CP	mg/kg	< 1	< 1	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S16-No23046	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S16-No23046	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S16-No23046	CP	mg/kg	0.6	< 0.5	200	30%	Fail Q15
Benz(a)anthracene	S16-No23046	CP	mg/kg	0.6	< 0.5	200	30%	Fail Q15
Benzo(a)pyrene	S16-No23046	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	S16-No23046	CP	mg/kg	0.6	< 0.5	200	30%	Fail Q15
Benzo(g,h,i)perylene	S16-No23046	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	S16-No23046	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S16-No23046	CP	mg/kg	0.6	< 0.5	200	30%	Fail Q15
Dibenz(a,h)anthracene	S16-No23046	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S16-No23046	CP	mg/kg	1.9	< 0.5	200	30%	Fail Q15
Fluorene	S16-No23046	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S16-No23046	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S16-No23046	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S16-No23046	CP	mg/kg	2.1	< 0.5	200	30%	Fail Q15
Pyrene	S16-No23046	CP	mg/kg	1.5	< 0.5	200	30%	Fail Q15
Duplicate								
% Moisture	S16-No23058	CP	%	17	18	1.0	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	S16-No23059	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C10-C14	S16-No23059	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C15-C28	S16-No23059	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH C29-C36	S16-No23059	CP	mg/kg	< 50	< 50	<1	30%	Pass
Duplicate								
BTX				Result 1	Result 2	RPD		
Benzene	S16-No23059	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	S16-No23059	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	S16-No23059	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	S16-No23059	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	S16-No23059	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total	S16-No23059	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S16-No23059	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	S16-No23059	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	S16-No23059	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	S16-No23059	CP	mg/kg	< 100	< 100	<1	30%	Pass
TRH >C34-C40	S16-No23059	CP	mg/kg	< 100	< 100	<1	30%	Pass

Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S16-No23063	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S16-No23063	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S16-No23063	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	S16-No23063	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	S16-No23063	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	S16-No23063	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(g,h,i)perylene	S16-No23063	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	S16-No23063	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S16-No23063	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	S16-No23063	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S16-No23063	CP	mg/kg	0.6	< 0.5	34	30%	Fail
Fluorene	S16-No23063	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S16-No23063	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S16-No23063	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S16-No23063	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	S16-No23063	CP	mg/kg	0.6	< 0.5	32	30%	Fail
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S16-No23063	CP	mg/kg	6.5	6.3	4.0	30%	Pass
Cadmium	S16-No23063	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S16-No23063	CP	mg/kg	13	12	5.0	30%	Pass
Copper	S16-No23063	CP	mg/kg	18	17	5.0	30%	Pass
Lead	S16-No23063	CP	mg/kg	55	52	4.0	30%	Pass
Mercury	S16-No23063	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	S16-No23063	CP	mg/kg	6.8	6.5	5.0	30%	Pass
Zinc	S16-No23063	CP	mg/kg	58	54	6.0	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	S16-No23069	CP	%	9.5	10.0	5.0	30%	Pass

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Nibha Vaidya	Analytical Services Manager
Nibha Vaidya	Senior Analyst-Asbestos (NSW)
Ryan Hamilton	Senior Analyst-Inorganic (NSW)
Ryan Hamilton	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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Certificate of Analysis

Coffey Geotechnics Pty Ltd Chatswood
Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or
measurements included in this document are traceable
to Australian/national standards.

Attention: Alex Ructtinger

Report 525093-W
Project name USYD HEALTH
Project ID GEOTLCOV25283AF
Received Date Nov 24, 2016

Client Sample ID			DAY3 Water	TB Water	TS Water	MW01 Water
Sample Matrix						
Eurofins mgt Sample No.			S16-No23043	S16-No23049	S16-No23050	S16-No23051
Date Sampled			Nov 21, 2016	Nov 22, 2016	Nov 22, 2016	Nov 22, 2016
Test/Reference	LOR	Unit				
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	-	< 0.02	-	-
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	90%	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	-	-	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	-	-	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	-	-	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1	-	-	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	107%	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	104%	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	99%	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	98%	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	103%	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	99%	< 0.003
4-Bromofluorobenzene (surr.)	1	%	93	89	103	99
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH C6-C10	0.02	mg/L	-	< 0.02	80%	-
Volatile Organics						
Naphthalene ^{N02}	0.01	mg/L	-	< 0.01	128%	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	< 0.01	-	-	< 0.01
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	< 0.05	-	-	< 0.05
TRH C6-C10	0.02	mg/L	< 0.02	-	-	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	< 0.02	-	-	< 0.02
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	-	-	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	-	-	< 0.001
Anthracene	0.001	mg/L	< 0.001	-	-	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	-	-	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	-	-	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001	-	-	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001	-	-	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	-	-	< 0.001
Chrysene	0.001	mg/L	< 0.001	-	-	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001	-	-	< 0.001

Client Sample ID Sample Matrix Eurofins mgt Sample No. Date Sampled Test/Reference	LOR	Unit	DAY3 Water S16-No23043 Nov 21, 2016	TB Water S16-No23049 Nov 22, 2016	TS Water S16-No23050 Nov 22, 2016	MW01 Water S16-No23051 Nov 22, 2016
Polycyclic Aromatic Hydrocarbons						
Fluoranthene	0.001	mg/L	< 0.001	-	-	< 0.001
Fluorene	0.001	mg/L	< 0.001	-	-	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	-	-	< 0.001
Naphthalene	0.001	mg/L	< 0.001	-	-	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	-	-	< 0.001
Pyrene	0.001	mg/L	< 0.001	-	-	< 0.001
Total PAH*	0.001	mg/L	< 0.001	-	-	< 0.001
2-Fluorobiphenyl (surr.)	1	%	81	-	-	65
p-Terphenyl-d14 (surr.)	1	%	98	-	-	86
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	0.05	mg/L	< 0.05	-	-	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	-	-	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	-	-	< 0.1
Heavy Metals						
Arsenic	0.001	mg/L	< 0.001	-	-	-
Arsenic (filtered)	0.001	mg/L	-	-	-	0.003
Cadmium	0.0002	mg/L	< 0.0002	-	-	-
Cadmium (filtered)	0.0002	mg/L	-	-	-	< 0.0002
Chromium	0.001	mg/L	0.032	-	-	-
Chromium (filtered)	0.001	mg/L	-	-	-	< 0.001
Copper	0.001	mg/L	0.010	-	-	-
Copper (filtered)	0.001	mg/L	-	-	-	< 0.001
Lead	0.001	mg/L	0.005	-	-	-
Lead (filtered)	0.001	mg/L	-	-	-	< 0.001
Mercury	0.0001	mg/L	< 0.0001	-	-	-
Mercury (filtered)	0.0001	mg/L	-	-	-	< 0.0001
Nickel	0.001	mg/L	0.017	-	-	-
Nickel (filtered)	0.001	mg/L	-	-	-	0.009
Zinc	0.005	mg/L	0.014	-	-	-
Zinc (filtered)	0.005	mg/L	-	-	-	0.082

Client Sample ID Sample Matrix Eurofins mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TB Water S16-No23052 Nov 22, 2016	TS Water S16-No23053 Nov 22, 2016	RINSATE Water S16-No23054 Nov 22, 2016
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	< 0.02	-	-
TRH C6-C9	0.02	mg/L	< 0.02	89%	< 0.02
TRH C10-C14	0.05	mg/L	-	-	< 0.05
TRH C15-C28	0.1	mg/L	-	-	< 0.1
TRH C29-C36	0.1	mg/L	-	-	< 0.1
TRH C10-36 (Total)	0.1	mg/L	-	-	< 0.1

Client Sample ID			TB Water	TS Water	RINSATE Water
Sample Matrix			S16-No23052	S16-No23053	S16-No23054
Eurofins mgt Sample No.			Nov 22, 2016	Nov 22, 2016	Nov 22, 2016
Date Sampled					
Test/Reference	LOR	Unit			
BTEX					
Benzene	0.001	mg/L	< 0.001	105%	< 0.001
Toluene	0.001	mg/L	< 0.001	102%	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	97%	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	95%	< 0.002
o-Xylene	0.001	mg/L	< 0.001	100%	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	97%	< 0.003
4-Bromofluorobenzene (surr.)	1	%	91	99	95
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
TRH C6-C10	0.02	mg/L	< 0.02	79%	-
Volatile Organics					
Naphthalene ^{N02}	0.01	mg/L	< 0.01	129%	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene ^{N02}	0.01	mg/L	-	-	< 0.01
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	-	-	< 0.05
TRH C6-C10	0.02	mg/L	-	-	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	-	-	< 0.02
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	0.001	mg/L	-	-	< 0.001
Acenaphthylene	0.001	mg/L	-	-	< 0.001
Anthracene	0.001	mg/L	-	-	< 0.001
Benz(a)anthracene	0.001	mg/L	-	-	< 0.001
Benzo(a)pyrene	0.001	mg/L	-	-	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	-	-	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	-	-	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	-	-	< 0.001
Chrysene	0.001	mg/L	-	-	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	-	-	< 0.001
Fluoranthene	0.001	mg/L	-	-	< 0.001
Fluorene	0.001	mg/L	-	-	< 0.001
Indeno(1,2,3-cd)pyrene	0.001	mg/L	-	-	< 0.001
Naphthalene	0.001	mg/L	-	-	< 0.001
Phenanthrene	0.001	mg/L	-	-	< 0.001
Pyrene	0.001	mg/L	-	-	< 0.001
Total PAH*	0.001	mg/L	-	-	< 0.001
2-Fluorobiphenyl (surr.)	1	%	-	-	81
p-Terphenyl-d14 (surr.)	1	%	-	-	85
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
TRH >C10-C16	0.05	mg/L	-	-	< 0.05
TRH >C16-C34	0.1	mg/L	-	-	< 0.1
TRH >C34-C40	0.1	mg/L	-	-	< 0.1
Heavy Metals					
Arsenic	0.001	mg/L	-	-	< 0.001
Cadmium	0.0002	mg/L	-	-	< 0.0002
Chromium	0.001	mg/L	-	-	0.002
Copper	0.001	mg/L	-	-	< 0.001
Lead	0.001	mg/L	-	-	< 0.001
Mercury	0.0001	mg/L	-	-	< 0.0001
Nickel	0.001	mg/L	-	-	0.001
Zinc	0.005	mg/L	-	-	< 0.005

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.

A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
TRH C6-C10 less BTEX (F1) - Method: LM-LTM-ORG-2010	Sydney	Nov 25, 2016	14 Day
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: TRH C6-C36 - LTM-ORG-2010	Sydney	Nov 29, 2016	7 Day
BTEX - Method: TRH C6-C40 - LTM-ORG-2010	Sydney	Nov 25, 2016	14 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Sydney	Nov 25, 2016	7 Day
Volatile Organics - Method: E016 Volatile Organic Compounds (VOC)	Sydney	Nov 25, 2016	7 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Sydney	Nov 25, 2016	7 Day
Eurofins mgt Suite B4			
Polycyclic Aromatic Hydrocarbons - Method: E007 Polyaromatic Hydrocarbons (PAH)	Sydney	Nov 29, 2016	7 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Sydney	Nov 29, 2016	7 Day
Metals M8 - Method: LTM-MET-3040 Metals in Waters by ICP-MS	Sydney	Nov 28, 2016	28 Day
Metals M8 filtered - Method: LTM-MET-3040 Metals in Waters by ICP-MS	Sydney	Nov 25, 2016	28 Day

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Project Name: USYD HEALTH
Project ID: GEOTLCOV25283AF

Order No.:
Report #: 525093
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: Nov 24, 2016 5:25 PM
Due: Dec 1, 2016
Priority: 5 Day
Contact Name: Alex Ructtinger

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8 filtered	Moisture Set	Semivolatile Organics	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271														
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
External Laboratory														
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID									
1	BH1_1_0-0.2m	Nov 21, 2016		Soil	S16-No23041	X		X	X		X		X	
2	BH1_2_0.5m	Nov 21, 2016		Soil	S16-No23042	X			X		X		X	
3	DAY3	Nov 21, 2016		Water	S16-No23043				X				X	
4	BH3_2_0.5m	Nov 21, 2016		Soil	S16-No23044	X		X	X		X		X	
5	BH3_3_1m	Nov 21, 2016		Soil	S16-No23045	X			X		X		X	
6	BH3_4_1.5m	Nov 21, 2016		Soil	S16-No23046	X		X	X		X		X	
7	DUP2	Nov 21, 2016		Soil	S16-No23047	X		X	X		X		X	
8	BH5_2_0.5m	Nov 22, 2016		Soil	S16-No23048	X			X		X		X	
9	TB	Nov 22, 2016		Water	S16-No23049									X

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Melbourne Laboratory - NATA Site # 1254 & 14271														
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
10	TS	Nov 22, 2016		Water	S16-No23050									X
11	MW01	Nov 22, 2016		Water	S16-No23051					X			X	
12	TB	Nov 22, 2016		Water	S16-No23052									X
13	TS	Nov 22, 2016		Water	S16-No23053									X
14	RINSATE	Nov 22, 2016		Water	S16-No23054				X				X	
15	HA01_0.2-0.3	Nov 24, 2016		Soil	S16-No23055	X		X	X		X	X	X	
16	DUP01	Nov 24, 2016		Soil	S16-No23056				X		X		X	
17	HA02_0.03-0.05	Nov 24, 2016		Soil	S16-No23057				X		X		X	
18	HA03_0.03-0.05	Nov 22, 2016		Soil	S16-No23058	X		X	X		X	X	X	
19	HA03_0.4-0.5	Nov 22, 2016		Soil	S16-No23059				X		X		X	
20	HA04_0.0-0.05	Nov 22, 2016		Soil	S16-No23060				X		X		X	

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Sample Detail						Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8 filtered	Moisture Set	Semivolatile Organics	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271														
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
21	HA04_0.5-0.6	Nov 22, 2016		Soil	S16-No23061	X								
22	HA04_0.9-1.0	Nov 22, 2016		Soil	S16-No23062				X		X		X	
23	HA05_0.0-0.2	Nov 22, 2016		Soil	S16-No23063	X			X		X		X	
24	HA06_0.0-0.2	Nov 22, 2016		Soil	S16-No23064	X			X		X		X	
25	HA06_0.9-1.0	Nov 22, 2016		Soil	S16-No23065				X		X		X	
26	HA07_0.1-0.2	Nov 24, 2016		Soil	S16-No23066	X			X		X		X	
27	HA07_0.5-0.6	Nov 24, 2016		Soil	S16-No23067				X		X		X	
28	HA08_0.1-0.2	Nov 24, 2016		Soil	S16-No23068	X		X	X		X		X	
29	HA08_0.5-0.6	Nov 24, 2016		Soil	S16-No23069				X		X		X	
30	BH1_3_1m	Nov 21, 2016		Soil	S16-No23070		X							
31	BH1_4_2.1m	Nov 21, 2016		Soil	S16-No23071		X							
32	BH3_1_0-0.2m	Nov 21, 2016		Soil	S16-No23072		X							

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Sample Detail						Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8 filtered	Moisture Set	Semivolatile Organics	Eurofins mgt Suite B4	BTEX and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271														
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
33	BH5_1_0-0.2m	Nov 22, 2016		Soil	S16-No23073		X							
34	BH5_3_1m	Nov 22, 2016		Soil	S16-No23074		X							
35	DAY4 TBP	Nov 22, 2016		Water	S16-No23075		X							
36	HA01_0.5-0.6	Nov 24, 2016		Soil	S16-No23076		X							
37	HA05_0.5-0.6	Nov 24, 2016		Soil	S16-No23077		X							
38	HA06_0.6	Nov 22, 2016		Soil	S16-No23078		X							
39	HA07_0.9-1.0	Nov 24, 2016		Soil	S16-No23079		X							
40	HA08_0.9-1.0	Nov 24, 2016		Soil	S16-No23080		X							
41	HA02_0.5-0.6	Nov 21, 2016		Soil	S16-No23180		X							
42	TB	Nov 21, 2016		Water	S16-No23192		X							
43	TS	Nov 21, 2016		Water	S16-No23193		X							
Test Counts						14	14	7	23	1	21	2	24	4

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per Kilogram

mg/l: milligrams per litre

ug/l: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100ml: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs 20-130%

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
Method Blank							
Volatile Organics							
Naphthalene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	105			70-130	Pass	
TRH C10-C14	%	117			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	104			70-130	Pass	
Toluene	%	105			70-130	Pass	
Ethylbenzene	%	104			70-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
m&p-Xylenes			%	104			70-130	Pass	
o-Xylene			%	106			70-130	Pass	
Xylenes - Total			%	105			70-130	Pass	
LCS - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions									
TRH C6-C10			%	97			70-130	Pass	
LCS - % Recovery									
Volatile Organics									
Naphthalene			%	118			70-130	Pass	
LCS - % Recovery									
Polycyclic Aromatic Hydrocarbons									
Acenaphthene			%	86			70-130	Pass	
Acenaphthylene			%	76			70-130	Pass	
Anthracene			%	94			70-130	Pass	
Benz(a)anthracene			%	78			70-130	Pass	
Benzo(a)pyrene			%	76			70-130	Pass	
Benzo(b&j)fluoranthene			%	81			70-130	Pass	
Benzo(g,h,i)perylene			%	80			70-130	Pass	
Benzo(k)fluoranthene			%	79			70-130	Pass	
Chrysene			%	82			70-130	Pass	
Dibenz(a,h)anthracene			%	77			70-130	Pass	
Fluoranthene			%	83			70-130	Pass	
Fluorene			%	83			70-130	Pass	
Indeno(1,2,3-cd)pyrene			%	76			70-130	Pass	
Naphthalene			%	81			70-130	Pass	
Phenanthrene			%	88			70-130	Pass	
Pyrene			%	85			70-130	Pass	
LCS - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions									
TRH >C10-C16			%	116			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic			%	108			70-130	Pass	
Arsenic (filtered)			%	107			70-130	Pass	
Cadmium			%	110			70-130	Pass	
Cadmium (filtered)			%	107			70-130	Pass	
Chromium			%	108			70-130	Pass	
Chromium (filtered)			%	108			70-130	Pass	
Copper			%	106			70-130	Pass	
Copper (filtered)			%	111			70-130	Pass	
Lead			%	111			70-130	Pass	
Lead (filtered)			%	111			70-130	Pass	
Mercury			%	118			70-130	Pass	
Mercury (filtered)			%	113			70-130	Pass	
Nickel			%	108			70-130	Pass	
Nickel (filtered)			%	108			70-130	Pass	
Zinc			%	108			70-130	Pass	
Zinc (filtered)			%	107			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M16-No20684	NCP	%	104			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzene	M16-No20684	NCP	%	94			70-130	Pass	
Toluene	M16-No20684	NCP	%	93			70-130	Pass	
Ethylbenzene	M16-No20684	NCP	%	93			70-130	Pass	
m&p-Xylenes	M16-No20684	NCP	%	95			70-130	Pass	
o-Xylene	M16-No20684	NCP	%	96			70-130	Pass	
Xylenes - Total	M16-No20684	NCP	%	95			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH C6-C10	M16-No20684	NCP	%	99			70-130	Pass	
Spike - % Recovery									
Volatile Organics				Result 1					
Naphthalene	M16-No20684	NCP	%	108			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S16-No24119	NCP	%	102			70-130	Pass	
Cadmium	S16-No24119	NCP	%	105			70-130	Pass	
Chromium	S16-No24119	NCP	%	99			70-130	Pass	
Copper	S16-No24119	NCP	%	99			70-130	Pass	
Lead	S16-No24119	NCP	%	102			70-130	Pass	
Mercury	S16-No24119	NCP	%	109			70-130	Pass	
Nickel	S16-No24119	NCP	%	100			70-130	Pass	
Zinc	S16-No24119	NCP	%	102			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S16-No21991	NCP	%	110			70-130	Pass	
Cadmium (filtered)	S16-No21991	NCP	%	92			70-130	Pass	
Chromium (filtered)	S16-No21991	NCP	%	91			70-130	Pass	
Copper (filtered)	S16-No21991	NCP	%	91			70-130	Pass	
Lead (filtered)	S16-No21991	NCP	%	72			70-130	Pass	
Mercury (filtered)	S16-No21991	NCP	%	81			70-130	Pass	
Nickel (filtered)	S16-No21991	NCP	%	101			70-130	Pass	
Zinc (filtered)	S16-No21991	NCP	%	120			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S16-No23688	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	S16-No23688	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	M16-No23102	NCP	mg/L	0.001	0.001	<1	30%	Pass	
Copper	S16-No23688	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead	S16-No23688	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	S16-No23688	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	M16-No24387	NCP	mg/L	0.004	0.004	3.0	30%	Pass	
Zinc	M16-No24387	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S16-No23051	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S16-No23051	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S16-No23051	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S16-No23051	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S16-No23051	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S16-No23051	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	S16-No23051	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	

Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C10	S16-No23051	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Duplicate								
Volatile Organics				Result 1	Result 2	RPD		
Naphthalene	S16-No23051	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic (filtered)	S16-No21990	NCP	mg/L	0.002	0.002	<1	30%	Pass
Cadmium (filtered)	S16-No21990	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Chromium (filtered)	S16-No21990	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Copper (filtered)	S16-No21990	NCP	mg/L	0.003	0.003	9.0	30%	Pass
Lead (filtered)	M16-No20193	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Mercury (filtered)	S16-No21990	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Nickel (filtered)	S16-No21990	NCP	mg/L	0.019	0.018	1.0	30%	Pass
Zinc (filtered)	S16-No21990	NCP	mg/L	0.040	0.038	5.0	30%	Pass

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Nibha Vaidya	Analytical Services Manager
Ryan Hamilton	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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Ellen Wandala Gamage

Subject: FW: VOC request - 525093
Attachments: 525093_COC.pdf; 524260_COC.pdf; 524268_COC.pdf

From: Ructtinger, Alex [<mailto:Alex.Ructtinger@coffey.com>]
Sent: Tuesday, 6 December 2016 4:11 PM
To: Andrew Black; !AU04_CAU001_EnviroSampleNSW
Cc: Esther Yew
Subject: RE: VOC request - 525093

In addition to the below,

Could I please get TCLP analysis done on a 48 hr TAT on the following please:

- Lead for HA06_0-0.2 and HA07_0.5-0.6
- Nickel for HA01-0.2-0.3
- B(a)P for BH6_1m and HA07_0.5-0.6

Thanks,

Kind Regards,

Alex Ructtinger
Environmental Consultant

John 526542

From: Ructtinger, Alex
Sent: Tuesday, 6 December 2016 2:02 PM
To: 'Andrew Black' <AndrewBlack@eurofins.com>
Cc: Esther Yew <EstherYew@eurofins.com>
Subject: RE: VOC request - 525093

Thanks Andrew,

Please conduct VOC analysis on sample HA02_0.03-0.05 on a 48 hr TAT (results required by Thursday).

Thanks,

Kind Regards,

Alex Ructtinger
Environmental Consultant

Level 19, Tower B - Citadel Tower,
799 Pacific Highway, Chatswood, NSW 2067

t: +61 2 9406 1052
f: +61 2 9406 1002
m: +61 427 235 873



>>> Ingenuity@coffey – it's the ideas that count

Sample Receipt Advice

Company name: **Coffey Geotechnics Pty Ltd Chatswood**
Contact name: **Alex Ructtinger**
Project name: **ADDITIONAL: USYD HEALTH**
Project ID: **GEOTLCOV25283AF**
COC number: **Not provided**
Turn around time: **2 Day**
Date/Time received: **Dec 6, 2016 4:11 PM**
Eurofins | mgt reference: **526542**

Sample information

- ☒ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☒ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : .1 degrees Celsius.
- ☒ All samples have been received as described on the above COC.
- ☒ COC has been completed correctly.
- ☒ Attempt to chill was evident.
- ☒ Appropriately preserved sample containers have been used.
- ☒ All samples were received in good condition.
- ☐ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☒ Appropriate sample containers have been used.
- ☐ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Analysis conducted outside of holding time upon BH6_1m | Additional from 525093 & 524260

Contact notes

If you have any questions with respect to these samples please contact:

Nibha Vaidya on Phone : +61 (2) 9900 8400 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Alex Ructtinger - alexander.ructtinger@coffey.com.

Note: A copy of these results will also be delivered to the general Coffey Geotechnics Pty Ltd Chatswood email address.

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067
Project Name: ADDITIONAL: USYD HEALTH
Project ID: GEOTLCOV25283AF

Order No.:
Report #: 526542
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: Dec 6, 2016 4:11 PM
Due: Dec 8, 2016
Priority: 2 Day
Contact Name: Alex Ructtinger

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Benzo(a)pyrene	Lead	Nickel	USA Leaching Procedure	Volatile Organics	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271											
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 18217											
External Laboratory											
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID						
1	HA02_0.03-0.05	Nov 24, 2016		Soil	S16-De05802					X	X
2	HA06_0-0.2	Nov 22, 2016		US Leachate	S16-De05803		X		X		
3	HA07_0.5-0.6	Nov 24, 2016		US Leachate	S16-De05804	X	X		X		
4	HA01_0.2-0.3	Nov 24, 2016		US Leachate	S16-De05805			X	X		
5	BH6_1m	Nov 14, 2016		US Leachate	S16-De05806	X			X		
Test Counts						2	2	1	4	1	1

Certificate of Analysis

Coffey Geotechnics Pty Ltd Chatswood
 Level 18, Tower B, Citadel Tower 799 Pacific Highway
 Chatswood
 NSW 2067



NATA Accredited
 Accreditation Number 1261
 Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
 The results of the tests, calibrations and/or
 measurements included in this document are traceable
 to Australian/national standards.

Attention: Alex Ructtinger

Report 526542-L
 Project name ADDITIONAL: USYD HEALTH
 Project ID GEOTLCOV25283AF
 Received Date Dec 06, 2016

Client Sample ID			HA06_0-0.2	HA07_0.5-0.6	HA01_0.2-0.3	BH6_1m
Sample Matrix			US Leachate	US Leachate	US Leachate	US Leachate
Eurofins mgt Sample No.			S16-De05803	S16-De05804	S16-De05805	S16-De05806
Date Sampled			Nov 22, 2016	Nov 24, 2016	Nov 24, 2016	Nov 14, 2016
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene	0.001	mg/L	-	< 0.001	-	< 0.001
Heavy Metals						
Lead	0.01	mg/L	0.23	0.09	-	-
Nickel	0.05	mg/L	-	-	0.07	-
USA Leaching Procedure						
Leachate Fluid ^{C01}		comment	1.0	1.0	1.0	1.0
pH (initial)	0.1	pH Units	6.2	5.5	8.5	6.1
pH (off)	0.1	pH Units	4.7	4.8	5.1	5.2
pH (USA HCl addition)	0.1	pH Units	1.8	1.8	1.8	1.8

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.

A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Polycyclic Aromatic Hydrocarbons	Sydney	Dec 07, 2016	7 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Heavy Metals	Sydney	Dec 06, 2016	180 Day
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
USA Leaching Procedure	Sydney	Dec 06, 2016	14 Day
- Method: LTM-GEN-7010			
- Method: Leaching Procedure for Soils & Solid Wastes			

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067
Project Name: ADDITIONAL: USYD HEALTH
Project ID: GEOTLCOV25283AF

Order No.:
Report #: 526542
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: Dec 6, 2016 4:11 PM
Due: Dec 8, 2016
Priority: 2 Day
Contact Name: Alex Ructtinger

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Benzo(a)pyrene	Lead	Nickel	USA Leaching Procedure	Volatile Organics	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271											
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 18217											
External Laboratory											
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID						
1	HA02_0.03-0.05	Nov 24, 2016		Soil	S16-De05802					X	X
2	HA06_0-0.2	Nov 22, 2016		US Leachate	S16-De05803		X		X		
3	HA07_0.5-0.6	Nov 24, 2016		US Leachate	S16-De05804	X	X		X		
4	HA01_0.2-0.3	Nov 24, 2016		US Leachate	S16-De05805			X	X		
5	BH6_1m	Nov 14, 2016		US Leachate	S16-De05806	X			X		
Test Counts						2	2	1	4	1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per Kilogram

mg/l: milligrams per litre

ug/l: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100ml: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs 20-130%

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank										
Polycyclic Aromatic Hydrocarbons										
Benzo(a)pyrene				mg/L	< 0.001			0.001	Pass	
Method Blank										
Heavy Metals										
Lead				mg/L	< 0.01			0.01	Pass	
Nickel				mg/L	< 0.05			0.05	Pass	
Test	Lab Sample ID	QA Source		Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery										
Heavy Metals					Result 1					
Lead	S16-De05804	CP	%		102			70-130	Pass	
Nickel	S16-De05804	CP	%		98			70-130	Pass	
Test	Lab Sample ID	QA Source		Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate										
Heavy Metals					Result 1	Result 2	RPD			
Lead	S16-De05803	CP	mg/L		0.23	0.24	2.0	30%	Pass	
Nickel	S16-De05803	CP	mg/L		< 0.05	< 0.05	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	No
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
C01	Leachate Fluid Key: 1 - pH 5.0; 2 - pH 2.9; 3 - pH 9.2; 4 - Reagent (DI) water; 5 - Client sample, 6 - other

Authorised By

Nibha Vaidya	Analytical Services Manager
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Metal (NSW)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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Certificate of Analysis

Coffey Geotechnics Pty Ltd Chatswood
Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or
measurements included in this document are traceable
to Australian/national standards.

Attention: **Alex Ructtinger**

Report **526542-S**
Project name **ADDITIONAL: USYD HEALTH**
Project ID **GEOTLCOV25283AF**
Received Date **Dec 06, 2016**

Client Sample ID			HA02_0.03-0.05
Sample Matrix			Soil
Eurofins mgt Sample No.			S16-De05802
Date Sampled			Nov 24, 2016
Test/Reference	LOR	Unit	
Volatile Organics			
1.1-Dichloroethane	0.05	mg/kg	< 0.05
1.1-Dichloroethene	0.05	mg/kg	< 0.05
1.1.1-Trichloroethane	0.05	mg/kg	< 0.05
1.1.1.2-Tetrachloroethane	0.05	mg/kg	< 0.05
1.1.2-Trichloroethane	0.05	mg/kg	< 0.05
1.1.2.2-Tetrachloroethane	0.05	mg/kg	< 0.05
1.2-Dibromoethane	0.05	mg/kg	< 0.05
1.2-Dichlorobenzene	0.05	mg/kg	< 0.05
1.2-Dichloroethane	0.05	mg/kg	< 0.05
1.2-Dichloropropane	0.05	mg/kg	< 0.05
1.2.3-Trichloropropane	0.05	mg/kg	< 0.05
1.2.4-Trimethylbenzene	0.05	mg/kg	< 0.05
1.3-Dichlorobenzene	0.05	mg/kg	< 0.05
1.3-Dichloropropane	0.05	mg/kg	< 0.05
1.3.5-Trimethylbenzene	0.05	mg/kg	< 0.05
1.4-Dichlorobenzene	0.05	mg/kg	< 0.05
2-Butanone (MEK)	0.05	mg/kg	< 0.05
2-Propanone (Acetone)	0.05	mg/kg	< 0.05
4-Chlorotoluene	0.05	mg/kg	< 0.05
4-Methyl-2-pentanone (MIBK)	0.05	mg/kg	< 0.05
Allyl chloride	0.05	mg/kg	< 0.05
Benzene	0.1	mg/kg	< 0.1
Bromobenzene	0.05	mg/kg	< 0.05
Bromochloromethane	0.05	mg/kg	< 0.05
Bromodichloromethane	0.05	mg/kg	< 0.05
Bromoform	0.05	mg/kg	< 0.05
Bromomethane	0.05	mg/kg	0.56
Carbon disulfide	0.05	mg/kg	< 0.05
Carbon Tetrachloride	0.05	mg/kg	1.8
Chlorobenzene	0.05	mg/kg	< 0.05
Chloroethane	0.05	mg/kg	< 0.05
Chloroform	0.5	mg/kg	0.9
Chloromethane	0.05	mg/kg	5.7
cis-1.2-Dichloroethene	0.05	mg/kg	< 0.05
cis-1.3-Dichloropropene	0.05	mg/kg	< 0.05

Client Sample ID			HA02_0.03-0.05
Sample Matrix			Soil
Eurofins mgt Sample No.			S16-De05802
Date Sampled			Nov 24, 2016
Test/Reference	LOR	Unit	
Volatile Organics			
Dibromochloromethane	0.05	mg/kg	< 0.05
Dibromomethane	0.05	mg/kg	< 0.05
Dichlorodifluoromethane	0.5	mg/kg	< 0.5
Ethylbenzene	0.1	mg/kg	< 0.1
Iodomethane	0.05	mg/kg	< 0.05
Isopropyl benzene (Cumene)	0.05	mg/kg	< 0.05
m&p-Xylenes	0.2	mg/kg	< 0.2
Methylene Chloride	0.05	mg/kg	< 0.05
o-Xylene	0.1	mg/kg	< 0.1
Styrene	0.05	mg/kg	< 0.05
Tetrachloroethene	0.05	mg/kg	< 0.05
Toluene	0.1	mg/kg	< 0.1
trans-1.2-Dichloroethene	0.05	mg/kg	< 0.05
trans-1.3-Dichloropropene	0.05	mg/kg	< 0.05
Trichloroethene	0.05	mg/kg	< 0.05
Trichlorofluoromethane	0.05	mg/kg	< 0.05
Vinyl chloride	0.05	mg/kg	< 0.05
Xylenes - Total	0.3	mg/kg	< 0.3
Fluorobenzene (surr.)	1	%	104
4-Bromofluorobenzene (surr.)	1	%	114
% Moisture	1	%	7.9

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.

A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Volatile Organics	Sydney	Dec 06, 2016	7 Day
- Method: E016 Volatile Organic Compounds (VOC)			
% Moisture	Sydney	Dec 06, 2016	14 Day
- Method: LTM-GEN-7080 Moisture			

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067
Project Name: ADDITIONAL: USYD HEALTH
Project ID: GEOTLCOV25283AF

Order No.:
Report #: 526542
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: Dec 6, 2016 4:11 PM
Due: Dec 8, 2016
Priority: 2 Day
Contact Name: Alex Ructtinger

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Benzo(a)pyrene	Lead	Nickel	USA Leaching Procedure	Volatle Organics	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271											
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 18217											
External Laboratory											
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID						
1	HA02_0.03-0.05	Nov 24, 2016		Soil	S16-De05802					X	X
2	HA06_0-0.2	Nov 22, 2016		US Leachate	S16-De05803		X		X		
3	HA07_0.5-0.6	Nov 24, 2016		US Leachate	S16-De05804	X	X		X		
4	HA01_0.2-0.3	Nov 24, 2016		US Leachate	S16-De05805			X	X		
5	BH6_1m	Nov 14, 2016		US Leachate	S16-De05806	X			X		
Test Counts						2	2	1	4	1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per Kilogram

mg/l: milligrams per litre

ug/l: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100ml: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs 20-130%

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/kg	< 0.05			0.05	Pass	
1.1-Dichloroethene	mg/kg	< 0.05			0.05	Pass	
1.1.1-Trichloroethane	mg/kg	< 0.05			0.05	Pass	
1.1.1.2-Tetrachloroethane	mg/kg	< 0.05			0.05	Pass	
1.1.2-Trichloroethane	mg/kg	< 0.05			0.05	Pass	
1.1.2.2-Tetrachloroethane	mg/kg	< 0.05			0.05	Pass	
1.2-Dibromoethane	mg/kg	< 0.05			0.05	Pass	
1.2-Dichlorobenzene	mg/kg	< 0.05			0.05	Pass	
1.2-Dichloroethane	mg/kg	< 0.05			0.05	Pass	
1.2-Dichloropropane	mg/kg	< 0.05			0.05	Pass	
1.2.3-Trichloropropane	mg/kg	< 0.05			0.05	Pass	
1.2.4-Trimethylbenzene	mg/kg	< 0.05			0.05	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.05			0.05	Pass	
1.3-Dichloropropane	mg/kg	< 0.05			0.05	Pass	
1.3.5-Trimethylbenzene	mg/kg	< 0.05			0.05	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.05			0.05	Pass	
2-Butanone (MEK)	mg/kg	< 0.05			0.05	Pass	
2-Propanone (Acetone)	mg/kg	< 0.05			0.05	Pass	
4-Chlorotoluene	mg/kg	< 0.05			0.05	Pass	
4-Methyl-2-pentanone (MIBK)	mg/kg	< 0.05			0.05	Pass	
Allyl chloride	mg/kg	< 0.05			0.05	Pass	
Benzene	mg/kg	< 0.1			0.1	Pass	
Bromobenzene	mg/kg	< 0.05			0.05	Pass	
Bromochloromethane	mg/kg	< 0.05			0.05	Pass	
Bromodichloromethane	mg/kg	< 0.05			0.05	Pass	
Bromoform	mg/kg	< 0.05			0.05	Pass	
Bromomethane	mg/kg	< 0.05			0.05	Pass	
Carbon disulfide	mg/kg	< 0.05			0.05	Pass	
Carbon Tetrachloride	mg/kg	< 0.05			0.05	Pass	
Chlorobenzene	mg/kg	< 0.05			0.05	Pass	
Chloroethane	mg/kg	< 0.05			0.05	Pass	
Chloroform	mg/kg	< 0.5			0.5	Pass	
Chloromethane	mg/kg	< 0.05			0.05	Pass	
cis-1.2-Dichloroethene	mg/kg	< 0.05			0.05	Pass	
cis-1.3-Dichloropropene	mg/kg	< 0.05			0.05	Pass	
Dibromochloromethane	mg/kg	< 0.05			0.05	Pass	
Dibromomethane	mg/kg	< 0.05			0.05	Pass	
Dichlorodifluoromethane	mg/kg	< 0.5			0.5	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
Iodomethane	mg/kg	< 0.05			0.05	Pass	
Isopropyl benzene (Cumene)	mg/kg	< 0.05			0.05	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
Methylene Chloride	mg/kg	< 0.05			0.05	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Styrene	mg/kg	< 0.05			0.05	Pass	
Tetrachloroethene	mg/kg	< 0.05			0.05	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
trans-1.2-Dichloroethene	mg/kg	< 0.05			0.05	Pass	
trans-1.3-Dichloropropene	mg/kg	< 0.05			0.05	Pass	
Trichloroethene	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Trichlorofluoromethane	mg/kg	< 0.05			0.05	Pass	
Vinyl chloride	mg/kg	< 0.05			0.05	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethane	%	95			70-130	Pass	
1.1.1-Trichloroethane	%	102			70-130	Pass	
1.1.1.2-Tetrachloroethane	%	112			70-130	Pass	
1.1.2-Trichloroethane	%	111			70-130	Pass	
1.1.2.2-Tetrachloroethane	%	104			70-130	Pass	
1.2-Dibromoethane	%	112			70-130	Pass	
1.2-Dichlorobenzene	%	107			70-130	Pass	
1.2-Dichloroethane	%	104			70-130	Pass	
1.2-Dichloropropane	%	112			70-130	Pass	
1.2.3-Trichloropropane	%	107			70-130	Pass	
1.2.4-Trimethylbenzene	%	109			70-130	Pass	
1.3-Dichlorobenzene	%	107			70-130	Pass	
1.3-Dichloropropane	%	111			70-130	Pass	
1.3.5-Trimethylbenzene	%	107			70-130	Pass	
1.4-Dichlorobenzene	%	106			70-130	Pass	
2-Butanone (MEK)	%	128			70-130	Pass	
2-Propanone (Acetone)	%	73			70-130	Pass	
4-Chlorotoluene	%	105			70-130	Pass	
4-Methyl-2-pentanone (MIBK)	%	108			70-130	Pass	
Allyl chloride	%	82			70-130	Pass	
Benzene	%	119			70-130	Pass	
Bromobenzene	%	107			70-130	Pass	
Bromochloromethane	%	113			70-130	Pass	
Bromodichloromethane	%	105			70-130	Pass	
Bromoform	%	99			70-130	Pass	
Bromomethane	%	93			70-130	Pass	
Carbon disulfide	%	87			70-130	Pass	
Carbon Tetrachloride	%	75			70-130	Pass	
Chlorobenzene	%	110			70-130	Pass	
Chloroethane	%	97			70-130	Pass	
Chloroform	%	126			70-130	Pass	
Chloromethane	%	99			70-130	Pass	
cis-1.2-Dichloroethene	%	98			70-130	Pass	
cis-1.3-Dichloropropene	%	98			70-130	Pass	
Dibromochloromethane	%	104			70-130	Pass	
Dibromomethane	%	110			70-130	Pass	
Dichlorodifluoromethane	%	101			70-130	Pass	
Ethylbenzene	%	114			70-130	Pass	
Isopropyl benzene (Cumene)	%	108			70-130	Pass	
m&p-Xylenes	%	112			70-130	Pass	
Methylene Chloride	%	83			70-130	Pass	
o-Xylene	%	112			70-130	Pass	
Styrene	%	117			70-130	Pass	
Tetrachloroethene	%	112			70-130	Pass	
Toluene	%	111			70-130	Pass	
trans-1.2-Dichloroethene	%	96			70-130	Pass	
trans-1.3-Dichloropropene	%	103			70-130	Pass	
Trichloroethene	%	112			70-130	Pass	
Vinyl chloride	%	111			70-130	Pass	
Xylenes - Total	%	103			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Volatile Organics				Result 1					
Benzene	S16-De06240	NCP	%	103			70-130	Pass	
Ethylbenzene	S16-De06240	NCP	%	106			70-130	Pass	
m&p-Xylenes	S16-De06240	NCP	%	109			70-130	Pass	
o-Xylene	S16-De06240	NCP	%	107			70-130	Pass	
Toluene	S16-De06240	NCP	%	104			70-130	Pass	
Xylenes - Total	S16-De06240	NCP	%	108			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.1-Dichloroethane	S16-De05992	NCP	mg/kg	< 0.05	0.85	200	30%	Fail	Q02
1.1-Dichloroethene	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.1.1-Trichloroethane	S16-De05992	NCP	mg/kg	0.23	0.25	10	30%	Pass	
1.1.1.2-Tetrachloroethane	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.1.2-Trichloroethane	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	S16-De05992	NCP	mg/kg	< 0.05	1.1	200	30%	Fail	Q02
1.2-Dibromoethane	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.2-Dichlorobenzene	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.2-Dichloroethane	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.2-Dichloropropane	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.2.3-Trichloropropane	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.2.4-Trimethylbenzene	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.3-Dichlorobenzene	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.3-Dichloropropane	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.3.5-Trimethylbenzene	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.4-Dichlorobenzene	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
2-Butanone (MEK)	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
2-Propanone (Acetone)	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4-Chlorotoluene	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Allyl chloride	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Benzene	S16-De05992	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Bromobenzene	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Bromochloromethane	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Bromodichloromethane	S16-De05992	NCP	mg/kg	4.6	4.3	6.0	30%	Pass	
Bromoform	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Bromomethane	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Carbon disulfide	S16-De05992	NCP	mg/kg	1.4	0.79	57	30%	Fail	Q02
Carbon Tetrachloride	S16-De05992	NCP	mg/kg	440	460	5.0	30%	Pass	
Chlorobenzene	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Chloroethane	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Chloroform	S16-De05992	NCP	mg/kg	510	530	5.0	30%	Pass	
Chloromethane	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
cis-1.2-Dichloroethene	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
cis-1.3-Dichloropropene	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dibromochloromethane	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dibromomethane	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dichlorodifluoromethane	S16-De05992	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Ethylbenzene	S16-De05992	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Iodomethane	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Isopropyl benzene (Cumene)	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
m&p-Xylenes	S16-De05992	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methylene Chloride	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
o-Xylene	S16-De05992	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Styrene	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Tetrachloroethene	S16-De05992	NCP	mg/kg	19	30	46	30%	Fail	Q02
Toluene	S16-De05992	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
trans-1,2-Dichloroethene	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
trans-1,3-Dichloropropene	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Trichloroethene	S16-De05992	NCP	mg/kg	1.4	1.9	29	30%	Pass	
Trichlorofluoromethane	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Vinyl chloride	S16-De05992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Xylenes - Total	S16-De05992	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S16-No22373	NCP	%	19	18	7.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	No
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
Q02	The duplicate %RPD is outside the recommended acceptance criteria. Further analysis indicates sample heterogeneity as the cause

Authorised By

Nibha Vaidya	Analytical Services Manager
Ryan Hamilton	Senior Analyst-Volatile (NSW)
Ryan Hamilton	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Inorganic (NSW)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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CERTIFICATE OF ANALYSIS

Work Order : **ES1627195**
Client : **COFFEY GEOTECHNICS**
Contact : ALEX RUCTTINGER
Address :
Telephone : ----
Project : GEOTLCOV25283AF USYD HEALTH
Order number : ----
C-O-C number : ----
Sampler : SM
Site : ----
Quote number : ----
No. of samples received : 1
No. of samples analysed : 1

Page : 1 of 7
Laboratory : Environmental Division Sydney
Contact : Customer Services ES
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +61-2-8784 8555
Date Samples Received : 28-Nov-2016 12:55
Date Analysis Commenced : 29-Nov-2016
Issue Date : 02-Dec-2016 17:19



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.

Signatories

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.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Raymond Commodore	Instrument Chemist	Sydney Inorganics, Smithfield, NSW



General Comments

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

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

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

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

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

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

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

LOR = Limit of reporting

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

ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- **EA200: As only one sample container was submitted for multiple tests, sub sampling was conducted prior to Asbestos analysis. As this has the potential to understate detection, results should be scrutinised accordingly.**
- 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.
- EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- 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), Dibenzo(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.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TRIP 1	----	----	----	----
Client sampling date / time				[21-Nov-2016]	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1627195-001	-----	-----	-----	-----
Result				----	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	20.2	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----
Asbestos Type	1332-21-4	-	--	-	----	----	----	----
Sample weight (dry)	----	0.01	g	26.9	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	C.OWLER	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	11	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	30	----	----	----	----
Copper	7440-50-8	5	mg/kg	6	----	----	----	----
Lead	7439-92-1	5	mg/kg	20	----	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	----	----	----	----
Zinc	7440-66-6	5	mg/kg	<5	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	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	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	----
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TRIP 1	----	----	----	----
Client sampling date / time				[21-Nov-2016]	----	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1627195-001	-----	-----	-----	-----	-----
Result				----	----	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
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	----	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	----	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	----	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	----	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	----	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TRIP 1	----	----	----	----
Client sampling date / time				[21-Nov-2016]	----	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1627195-001	-----	-----	-----	-----	-----
Result				----	----	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg	<50	----	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	----	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	----	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	117	----	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	75.4	----	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	100	----	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	94.8	----	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.5	%	118	----	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	95.7	----	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%	110	----	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	100	----	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	97.9	----	----	----	----	----
Toluene-D8	2037-26-5	0.2	%	95.1	----	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	93.4	----	----	----	----	----

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Work Order : ES1627195
Client : COFFEY GEOTECHNICS
Project : GEOTLCOV25283AF USYD HEALTH



Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	TRIP 1 - [21-Nov-2016]	Pale red-brown sandy soil



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

QUALITY CONTROL REPORT

Work Order : ES1627195

Page : 1 of 8

Client : **COFFEY GEOTECHNICS**
 Contact : **ALEX RUCTTINGER**
 Address :
 Telephone : ----
 Project : **GEOTLCOV25283AF USYD HEALTH**
 Order number : ----
 C-O-C number : ----
 Sampler : **SM**
 Site : ----
 Quote number : ----
 No. of samples received : **1**
 No. of samples analysed : **1**

Laboratory : Environmental Division Sydney
 Contact : Customer Services ES
 Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
 Telephone : +61-2-8784 8555
 Date Samples Received : 28-Nov-2016
 Date Analysis Commenced : 29-Nov-2016
 Issue Date : 02-Dec-2016



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

Signatories

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.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Raymond Commodore	Instrument Chemist	Sydney Inorganics, Smithfield, NSW



General Comments

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

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: 672455)									
ES1627194-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	24.0	27.1	12.5	0% - 20%
ES1627230-006	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	5.4	4.3	21.4	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 675564)									
ES1627178-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	20	21	0.00	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	11	11	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	8	17.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	32	32	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	47	47	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	104	106	2.32	0% - 20%
ES1627299-004	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	13	12	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	8	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	61	59	3.42	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	202	197	2.68	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	223	221	1.16	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 675565)									
ES1627178-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1627299-004	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 671649)									
ES1627180-001	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Page : 4 of 8
 Work Order : ES1627195
 Client : COFFEY GEOTECHNICS
 Project : GEOTLCOV25283AF USYD HEALTH



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: 671181) - continued									
ES1627193-021	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1627193-040	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 671647)									
ES1627180-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	130	140	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: 671181)									
ES1627193-021	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1627193-040	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: 671647)									
ES1627180-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	110	110	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	230	220	4.79	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 671181)									
ES1627193-021	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	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1627193-040	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
		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	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit		



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

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

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG005T: Total Metals by ICP-AES (QCLot: 675564)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	105	86	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	100	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	104	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	103	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	102	80	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	105	87	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	110	80	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 675565)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	81.0	70	105
EP068A: Organochlorine Pesticides (OC) (QCLot: 671649)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	95.5	69	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	94.6	65	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	92.5	67	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	95.0	68	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	96.0	65	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	93.6	67	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	96.3	69	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	94.8	62	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	95.0	63	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.5	66	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.5	64	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	97.5	66	116
EP068: 4,4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.4	67	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.6	67	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.9	69	115
EP068: 4,4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	100	69	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	97.7	56	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.3	62	124
EP068: 4,4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	106	66	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	95.0	64	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	92.0	54	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 671648)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	94.6	77	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	84.7	72	124



Sub-Matrix: **SOIL**

Method: Compound				Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
CAS Number	LOR	Unit						
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 671648) - continued								
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	87.7	73	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	81.5	72	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	88.9	75	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	87.8	77	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	83.3	73	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	83.8	74	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	87.6	69	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	93.4	75	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	6 mg/kg	82.4	68	116
	205-82-3							
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	89.5	74	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	79.9	70	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	77.8	61	121
EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	77.2	62	118
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	83.3	63	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 671181)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	118	68	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 671647)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	99.9	75	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	106	77	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	93.7	71	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 671181)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	120	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 671647)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	250 mg/kg	97.3	77	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	110	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	150 mg/kg	87.9	63	131
EP080: BTEXN (QCLot: 671181)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	108	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	110	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	103	65	117
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	102	66	118
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	106	68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	102	63	119

Matrix Spike (MS) Report



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

Sub-Matrix: SOIL				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: 675564)							
ES1627125-028	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	110	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	100	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	103	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	104	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	102	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	98.0	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	104	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 675565)							
ES1627178-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	89.2	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 671649)							
ES1627180-001	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	93.1	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	75.6	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	91.5	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	90.1	70	130
		EP068: Endrin	72-20-8	2 mg/kg	86.0	70	130
		EP068: 4,4`-DDT	50-29-3	2 mg/kg	78.9	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 671648)							
ES1627180-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	89.3	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	95.3	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 671181)							
ES1627193-021	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	102	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 671647)							
ES1627180-001	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	85.8	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	92.6	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	108	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 671181)							
ES1627193-021	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	107	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 671647)							
ES1627180-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	93.1	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	106	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	102	52	132
EP080: BTEXN (QCLot: 671181)							
ES1627193-021	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	96.3	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	101	70	130



Sub-Matrix: SOIL

Laboratory sample IDClient sample IDMethod: CompoundCAS Number				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EP080: BTEXN (QCLot: 671181) - continued							
ES1627193-021	Anonymous	EP080: Ethylbenzene	100-41-4	2.5 mg/kg	103	70	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	96.5	70	130
		106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	93.2	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	77.6	70	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES1627195	Page	: 1 of 4
Client	: COFFEY GEOTECHNICS	Laboratory	: Environmental Division Sydney
Contact	: ALEX RUCTTINGER	Telephone	: +61-2-8784 8555
Project	: GEOTLCOV25283AF USYD HEALTH	Date Samples Received	: 28-Nov-2016
Site	: ----	Issue Date	: 02-Dec-2016
Sampler	: SM	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

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.

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	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103) TRIP 1	21-Nov-2016	----	----	----	29-Nov-2016	05-Dec-2016	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Subsampled by ALS (EA200) TRIP 1	21-Nov-2016	----	----	----	30-Nov-2016	20-May-2017	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) TRIP 1	21-Nov-2016	01-Dec-2016	20-May-2017	✓	01-Dec-2016	20-May-2017	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) TRIP 1	21-Nov-2016	01-Dec-2016	19-Dec-2016	✓	01-Dec-2016	19-Dec-2016	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068) TRIP 1	21-Nov-2016	29-Nov-2016	05-Dec-2016	✓	29-Nov-2016	08-Jan-2017	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) TRIP 1	21-Nov-2016	29-Nov-2016	05-Dec-2016	✓	29-Nov-2016	08-Jan-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) TRIP 1	21-Nov-2016	29-Nov-2016	05-Dec-2016	✓	29-Nov-2016	08-Jan-2017	✓
Soil Glass Jar - Unpreserved (EP080) TRIP 1	21-Nov-2016	29-Nov-2016	05-Dec-2016	✓	30-Nov-2016	05-Dec-2016	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071) TRIP 1	21-Nov-2016	29-Nov-2016	05-Dec-2016	✓	29-Nov-2016	08-Jan-2017	✓
Soil Glass Jar - Unpreserved (EP080) TRIP 1	21-Nov-2016	29-Nov-2016	05-Dec-2016	✓	30-Nov-2016	05-Dec-2016	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) TRIP 1	21-Nov-2016	29-Nov-2016	05-Dec-2016	✓	30-Nov-2016	05-Dec-2016	✓



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 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	13	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	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 (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve.
Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ 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.

Consigning Office: <u>Chatswood</u>		Report Results to: <u>Alex Ructtinger</u>		Mobile: <u>0427 235 873</u>	Email: <u>alex.ructtinger@coffey.com</u>																
Invoices to: <u>Cof Chat General</u>		Phone:		Email:																	
Project No: <u>GEOTLCOV25283AF</u>		Task No: <u>Laboratory</u>		Analysis Request Section Suite B4 Metals M8 Asbestos (P/A) BTEX + C6-C9 OCF																	
Project Name: <u>Usyd Health</u>		Laboratory: <u>MGT</u>																			
Sampler's Name: <u>SM</u>		Project Manager: <u>AR</u>																			
Special Instructions:																					
Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	Suite B4	Metals M8	Asbestos (P/A)	BTEX + C6-C9	OCF										
	BH1-1 0-0.2m	21/11/2016		Soil	11, 1Z	Std	X	X	X		X										
	BH1-2 0.5m	21/11/2016		Soil	11, 1Z	Std	X	X	X												
	BH1-3 1m	21/11/2016		Soil	11, 1Z	Std															
	BH1-4 2.1m	21/11/2016		Soil	11, 1Z	Std															
	Day 3	21/11/2016		Water	2v, 1g, 2p	Std	X	X													
	BH3-1 0-0.2m	21/11/2016		Soil	11, 1Z	Std															
	BH3-2 0.5m	21/11/2016		Soil	11, 1Z	Std	X	X	X		X										
	BH3-3 1m	21/11/2016		Soil	11, 1Z	Std	X	X	X												
	BH3-4 1.5m	21/11/2016		Soil	11, 1Z	Std	X	X	X		X										
	Dup2	21/11/2016		Soil	11	Std	X	X	X		X										
	Trip1	21/11/2016		Soil	11	Std	X	X	X		X										
	BH5-1 0-0.2m	22/11/2016		Soil	11, 1Z	Std															
	BH5-2 0.5m	22/11/2016		Soil	11, 1Z	Std	X	X	X												
	BH5-3 1m	22/11/2016		Soil	11, 1Z	Std															
	Day 4 TBP	22/11/2016		Water	2v, 1g, 2p	Std															
	T8/TS	22/11/2016		Water	2v/2v	Std					X										
RECEIVED BY							Sample Receipt Advice: (Lab Use Only) All Samples Received in Good Condition ☒ All Documentation is in Proper Order ☒ Samples Received Properly Chilled ☒ Lab. Ref/Batch No. 525093														
Name: <u>Alex Ructtinger</u>			Date: <u>24/11/2016</u>		Name: <u>Elker Wh</u>															Date: <u>24/11/16</u>	
Coffey			Time: <u>12:00</u>		Company: <u>EH mgf</u>															Time: <u>1840</u>	
Name: <u>Sean</u>			Date: <u>28/11</u>		Name: <u>Myraud</u>															Date: <u>28/11/16</u>	
Company: <u>EF</u>			Time: <u>10:00</u>		Company: <u>ALS</u>		Time: <u>12:55</u>														
*Container Type & Preservation Codes: P - Plastic, G- Glass Bottle, J - Glass Jar, V - Vial, Z - Ziplock bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative																					

Environmental Division
Sydney
Work Order Reference
ES1627195



Telephone : + 61-2-8784 8555

Forward to ALS

Subcon / Forward Lab / Split WO
Lab / Analysis: Asbestos
Organised By / Date: Newcar
Relinquished By / Date: Newcar
Connote / Courier: Newcar
WO No: _____
Attach By PO Internal Sheet: _____

Consigning Office: <u>Chatswood</u>		Report Results to: <u>Alex Ructtinger</u>		Mobile: <u>0427 235 873</u>	Email: <u>alex.ructtinger@coffey.com</u>											
Invoices to: <u>Cof Chat General</u>		Phone:		Email:												
Project No: <u>GEOTLCOV25283AF</u>	Task No: <u>Laboratory</u>	Analysis Request Section Suite B4 Metals MB Asbestos (P/A) BTEX + C6-C9 OCF														
Project Name: <u>Usyd Health</u>	Laboratory: <u>MGT</u>															
Sampler's Name: <u>SM</u>	Project Manager: <u>AR</u>															
Special Instructions:																
Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	Suite B4	Metals MB	Asbestos (P/A)	BTEX + C6-C9	OCF					
	BH1-1 0-0.2m	21/11/2016		Soil	1J, 1Z	Std	X	X	X		X					
	BH1-2 0.5m	21/11/2016		Soil	1J, 1Z	Std	X	X	X							
	BH1-3 1m	21/11/2016		Soil	1J, 1Z	Std										
	BH1-4 2.1m	21/11/2016		Soil	1J, 1Z	Std										
	Day 3	21/11/2016		Water	2v, 1g, 2p	Std	X	X								
	BH3-1 0-0.2m	21/11/2016		Soil	1J, 1Z	Std										
	BH3-2 0.5m	21/11/2016		Soil	1J, 1Z	Std	X	X	X		X					
	BH3-3 1m	21/11/2016		Soil	1J, 1Z	Std	X	X	X							
	BH3-4 1.5m	21/11/2016		Soil	1J, 1Z	Std	X	X	X		X					
	Dup2	21/11/2016		Soil	1J	Std	X	X	X		X					
	Trip1	21/11/2016		Soil	1J	Std	X	X	X		X					
	BH5-1 0-0.2m	22/11/2016		Soil	1J, 1Z	Std										
	BH5-2 0.5m	22/11/2016		Soil	1J, 1Z	Std	X	X	X							
	BH5-3 1m	22/11/2016		Soil	1J, 1Z	Std										
	Day 4 TBP	22/11/2016		Water	2v, 1g, 2p	Std										
	TB/TS	22/11/2016		Water	2v/2v	Std				X						
RECEIVED BY							Sample Receipt Advice: (Lab Use Only) All Samples Received in Good Condition ☒ All Documentation is in Proper Order ☒ Samples Received Properly Chilled ☒ Lab. Ref/Batch No. 525093									
Name: <u>Alex Ructtinger</u>			Date: <u>24/11/2016</u>		Name: <u>Elen W</u>										Date: <u>24/11/16</u>	
Coffey			Time: <u>12:00</u>		Company: <u>ET/mag</u>										Time: <u>1840</u>	
Name: <u>Sean EF</u>			Date: <u>28/11</u>		Name: <u>Myraud</u>										Date: <u>28/11/16</u>	
Company: <u>EF</u>			Time: <u>10.00</u>		Company: <u>ALS</u>		Time: <u>12.55</u>									
*Container Type & Preservation Codes: P - Plastic, G - Glass Bottle, J - Glass Jar, V - Vial, Z - Ziplock bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative																

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Forward to ALS

Subcon / Forward Lab / Split WO

Lab / Analysis: Asbestos

Organised By / Date: Newcar

Relinquished By / Date: Newcar

Connote / Courier: Newcar

WO No:

Attach By PO Internal Sheet:

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