


Sheet <u>3</u> of <u>3</u>					Sample Matrix		Analysis														Comments			
Site: <u>7 Luxford Road, Mount Drutt</u>					Project No: <u>E23648 EO2</u>																		<b>HM A</b> Arsenic Cadmium Chromium Copper Lead Mercury Nickel Zinc  <b>HM B</b> Arsenic Cadmium Chromium Lead Mercury Nickel  <b>Dewatering Suite</b> pH & EC TDS / Turbidity NTU Hardness Total Cyanide Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn) TRH (F1, F2, F3, F4) BTEX PAH Total Phenol  <b>LABORATORY TURNAROUND</b> <input checked="" type="checkbox"/> Standard <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> 72 Hours <input type="checkbox"/> Other _____	
Laboratory:		<b>SGS Australia</b> Unit 16, 33 Maddox Street, ALEXANDRIA NSW 2015 P: 02 8594 0400 F: 02 8594 0499																						
Sample ID	Laboratory ID	Container Type	Sampling		WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM A / TRH/BTEX/PAHS OC/P/PCB/Asbestos, <u>Bowling</u>	HM A / TRH/BTEX/PAHS	HM A / TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS	Held	TCLP HM B / PAH			
Date	Time																							
BH10_1.3-1.4		J, ZLB	01/08/19	AM		X														X				
BH11_0.2-0.3																			X					
BH11_0.5-0.6	17							X																
BH11_1.1-1.2		↓																	X					
BHQD1	18	J							X															
BHQD2		J				↓													X					
BHQR	19	S.P. PVC				X				X														
BHQRB		↓				X													X					
BHQT3	20	lab prepared					X				X													
BHQTS	21	↓					X				X													
Container Type: J= solvent washed, acid rinsed, Teflon sealed, glass jar S= solvent washed, acid rinsed glass bottle P= natural HDPE plastic bottle VC= glass vial, Teflon Septum ZLB = Zip-Lock Bag					Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.										Report with EI Waste Classification Table <input type="checkbox"/>									
 Suite 6.01, 55 Miller Street, PYRMONT NSW 2009 Ph: 9516 0722 <a href="mailto:lab@eiaustralia.com.au">lab@eiaustralia.com.au</a> <small>COC March 2018 FORM v.4 - 503</small>					Sampler's Name (EI): Print <u>Maria Barbosa</u> Signature <u>[Signature]</u> Date <u>02/08/19</u>					Received by (SGS): Print <u>J.L</u> Signature <u>J.L</u> Date <u>21/8/19 4:20pm</u>					Sampler's Comments: <u>Please include barium in HM.</u>									
					IMPORTANT: Please e-mail laboratory results to: <a href="mailto:lab@eiaustralia.com.au">lab@eiaustralia.com.au</a>																			



## SAMPLE RECEIPT ADVICE

SE196046

## CLIENT DETAILS

Contact Luiza Barbosa  
Client E1 AUSTRALIA  
Address SUITE 6.01  
55 MILLER STREET  
PYRMONT NSW 2009

Telephone 61 2 95160722  
Facsimile (Not specified)  
Email Luiza.Barbosa@eiaustralia.com.au

Project E23648.E02 - 7 Luxford Road Mount Dwyer  
Order Number E23648.E02  
Samples 21

## LABORATORY DETAILS

Manager Huong Crawford  
Laboratory SGS Alexandria Environmental  
Address Unit 16, 33 Maddox St  
Alexandria NSW 2015

Telephone +61 2 8594 0400  
Facsimile +61 2 8594 0499  
Email au.environmental.sydney@sgs.com

Samples Received Fri 2/8/2019  
Report Due Fri 9/8/2019  
SGS Reference SE196046

## SUBMISSION DETAILS

This is to confirm that 21 samples were received on Friday 2/8/2019. Results are expected to be ready by COB Friday 9/8/2019. Please quote SGS reference SE196046 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provided	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	20 Soil, 1 Water
Date documentation received	2/8/2019	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	No
Sample temperature upon receipt	9.3°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

## COMMENTS

12 Soil and 1 water samples have been placed on hold as no tests have been assigned for them by the client. These samples will not be processed.  
BH10\_0.2-0.3 received broken sample recovered

This document is issued by the Company under its General Conditions of Service accessible at [www.sgs.com/en/Terms-and-Conditions.aspx](http://www.sgs.com/en/Terms-and-Conditions.aspx). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.



## CLIENT DETAILS

Client EI AUSTRALIA

Project E23648.E02 - 7 Luxford Road Mount Dwyer

## SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH1M_0.4-0.5	29	14	26	11	8	10	11	7
002	BH1M_0.7-0.8	-	-	26	-	7	10	11	7
003	BH2M_0.2-0.3	29	14	26	11	8	10	11	7
004	BH2M_0.6-0.7	-	-	26	-	7	10	11	7
005	BH3M_0.2-0.3	29	14	26	11	8	10	11	7
006	BH3M_0.7-0.8	-	-	26	-	7	10	11	7
007	BH4_0.4-0.5	29	14	26	11	8	10	11	7
008	BH5_0.2-0.3	29	14	26	11	8	10	11	7
009	BH6_0.2-0.3	29	14	26	11	8	10	11	7
010	BH7_0.2-0.3	29	14	26	11	8	10	11	7
011	BH7_0.7-0.8	-	-	26	-	7	10	11	7
012	BH8_0.2-0.3	29	14	26	11	8	10	11	7
013	BH9_0.2-0.3	29	14	26	11	8	10	11	7
014	BH9_0.7-0.8	-	-	26	-	7	10	11	7
015	BH10_0.2-0.3	29	14	26	11	8	10	11	7
016	BH10_0.6-0.7	-	-	26	-	7	10	11	7
017	BH11_0.5-0.6	29	14	26	11	8	10	11	7
018	BHQD1	-	-	-	-	7	10	11	7
020	BHQTb	-	-	-	-	-	-	11	-
021	BHQTS	-	-	-	-	-	-	11	-

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document. The numbers shown in the table indicate the number of results requested in each package. Please indicate as soon as possible should your request differ from these details. Testing as per this table shall commence immediately unless the client intervenes with a correction.



## SAMPLE RECEIPT ADVICE

SE196046

## CLIENT DETAILS

Client EI AUSTRALIA

Project E23648.E02 - 7 Luxford Road Mount Dwitz

## SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	BH1M_0.4-0.5	2	1	1
002	BH1M_0.7-0.8	-	1	1
003	BH2M_0.2-0.3	2	1	1
004	BH2M_0.6-0.7	-	1	1
005	BH3M_0.2-0.3	2	1	1
006	BH3M_0.7-0.8	-	1	1
007	BH4_0.4-0.5	2	1	1
008	BH5_0.2-0.3	2	1	1
009	BH6_0.2-0.3	2	1	1
010	BH7_0.2-0.3	2	1	1
011	BH7_0.7-0.8	-	1	1
012	BH8_0.2-0.3	2	1	1
013	BH9_0.2-0.3	2	1	1
014	BH9_0.7-0.8	-	1	1
015	BH10_0.2-0.3	2	1	1
016	BH10_0.6-0.7	-	1	1
017	BH11_0.5-0.6	2	1	1
018	BHQD1	-	1	1
020	BHQTb	-	-	1

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.

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Please indicate as soon as possible should your request differ from these details.

Testing as per this table shall commence immediately unless the client intervenes with a correction.



## SAMPLE RECEIPT ADVICE

SE196046

### CLIENT DETAILS

Client EI AUSTRALIA



Project E23648.E02 - 7 Luxford Road Mount Dwitz


### SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Trace Metals (Dissolved) in Water by ICPMS	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
019	BHQR	1	7	10	11	7

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.  
The numbers shown in the table indicate the number of results requested in each package.  
Please indicate as soon as possible should your request differ from these details .  
Testing as per this table shall commence immediately unless the client intervenes with a correction .



Sheet <u>1</u> of <u>1</u>			Sample Matrix		Analysis												Comments									
Site: <u>7 Luxford Road, Mount Druitt</u>			Project No: <u>E23648</u>															HM A Arsenic Cadmium Chromium Copper Lead Mercury Nickel Zinc HM B Arsenic Cadmium Chromium Lead Mercury Nickel								
Laboratory: <u>EnviroLab Services</u> <u>12 Ashley Street,</u> <u>CHATSWOOD NSW 2067</u> <u>P: 02 9910 6200</u>																										
Sample ID	Laboratory ID	Container Type	Sampling		WATER	SOIL	OTHERS (i.e. Fibre, Paint, etc.)	HM A /TRH/BTEX/PAHs OC/PO/PCB/Asbestos	HM A /TRH/BTEX/PAHs	HM A /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	SPOCAS	PFAS	Held	TCLP HM B / PAH					
			Date	Time																						
BHQT1	1	J	01/08/19	AM/PM		X				X																
BHQT2	2	J	↓	↓		↓														X						
					<div style="text-align: center;">  <p>EnviroLab Services 12 Ashley St Chatswood NSW 2067 Ph: (02) 9910 6200</p> <p>Job No: <u>223050</u></p> <p>Date Received: <u>2/8/19</u> Time Received: <u>15:35</u> Received by: <u>Mo</u> Temp: <u>14.1°C</u> Cupling: <u>100%</u> Security: <u>Intact/Broken/None</u></p> </div>																					
					<div style="text-align: center;"> <p><b>LABORATORY TURNAROUND</b></p> <p><input checked="" type="checkbox"/> Standard</p> <p><input type="checkbox"/> 24 Hours</p> <p><input type="checkbox"/> 48 Hours</p> <p><input type="checkbox"/> 72 Hours</p> <p><input type="checkbox"/> Other _____</p> </div>																					
Container Type: J= solvent washed, acid rinsed, Teflon sealed, glass jar S= solvent washed, acid rinsed glass bottle P= natural HDPE plastic bottle VC= glass vial, Teflon Septum ZLB = Zip-Lock Bag					Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.										Report with EI Waste Classification Table <input type="checkbox"/>											
<div style="text-align: center;">  <p>Suite 6.01, 55 Miller Street, PYRMONT NSW 2009 Ph: 9516 0722 lab@eiaustralia.com.au</p> <p>COC March 2018 FORM v4 - SGS</p> </div>					Sampler's Name (EI): Print <u>Luiza Barbosa</u> Signature <u>[Signature]</u> Date <u>02/08/19</u>					Received by (EnviroLab): Print <u>Michael Orie</u> Signature <u>[Signature]</u> Date <u>2/8/19</u>					Sampler's Comments:											
					IMPORTANT: Please e-mail laboratory results to: lab@eiaustralia.com.au																					

Sheet <u>1</u> of <u>1</u>				Sample Matrix		Analysis												Comments				
Site: <u>7 Luxford Road</u> <u>Mount Druitt, NSW</u>			Project No: <u>E23648</u> <u>E02</u>		WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM A / TRH/BTEX/PAHs OC/OP/PCBI/asbestos	HM A / TRH/BTEX/PAHs	HM A / TRH/BTEX	BTEX	VOCs, Phenols	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	EC (electrical conductivity), Hardness	Dewatering Suite	sPOCAS	PFAS	Hold	TCLP HM B / PAH	HM A Arsenic Cadmium Chromium Copper Lead Mercury Nickel Zinc  HM B Arsenic Cadmium Chromium Lead Mercury Nickel
Sample ID	Laboratory ID	Container Type	Sampling																			
			Date	Time																		
GWCHM-1	1	S,P, 2x VC	9/8/19	AM/PM	X				X			X				X						Dewatering Suite pH & EC TDS / Turbidity NTU Hardness Total Cyanide Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn) TRH (F1, F2, F3, F4) BTEX PAH Total Phenol
GWCH2M-1	2								X			X				X						
GWCH3M-1	3								X			X				X						
GWQD-1	4									X												
GWQR-1	5									X												
GWQAB-1		↓	↓	↓															X			LABORATORY TURNAROUND
GWQTB	6	lab prepared									X											<input checked="" type="checkbox"/> Standard
GWQTS	7	↓									X											<input type="checkbox"/> 24 Hours
																						<input type="checkbox"/> 48 Hours
																						<input type="checkbox"/> 72 Hours
																						<input type="checkbox"/> Other _____
Container Type: J= solvent washed, acid rinsed, Teflon sealed, glass jar S= solvent washed, acid rinsed glass bottle P= natural HDPE plastic bottle VC= glass vial, Teflon Septum ZLB= Zip-Lock Bag					Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.												Report with EI Waste Classification Table <input type="checkbox"/>					
 Suite 6.01, 55 Miller Street, PYRMONT NSW 2009 Ph: 9516 0722 lab@eiaustralia.com.au COC March 2018 FORM v4 - SGS					Sampler's Name (EI): Print <u>Luiza Barbasa</u> Signature <u>[Signature]</u> Date <u>12/8/19</u>				Received by (SGS): Print <u>Suba</u> Signature <u>[Signature]</u> Date <u>12/08/19 03:40</u>				Sampler's Comments:									
					IMPORTANT: Please e-mail laboratory results to: lab@eiaustralia.com.au																	



## SAMPLE RECEIPT ADVICE

SE196337

### CLIENT DETAILS

Contact Luiza Barbosa  
Client EI AUSTRALIA  
Address SUITE 6.01  
55 MILLER STREET  
PYRMONT NSW 2009  
  
Telephone 61 2 95160722  
Facsimile (Not specified)  
Email Luiza.Barbosa@eiaustralia.com.au  
  
Project E23648.E02 7 Luxford Rd.Mt Druitt, NSW  
Order Number E23648.E02  
Samples 7

### LABORATORY DETAILS

Manager Huong Crawford  
Laboratory SGS Alexandria Environmental  
Address Unit 16, 33 Maddox St  
Alexandria NSW 2015  
  
Telephone +61 2 8594 0400  
Facsimile +61 2 8594 0499  
Email au.environmental.sydney@sgs.com  
  
Samples Received Mon 12/8/2019  
Report Due Mon 19/8/2019  
SGS Reference SE196337

### SUBMISSION DETAILS

This is to confirm that 7 samples were received on Monday 12/8/2019. Results are expected to be ready by COB Monday 19/8/2019. Please quote SGS reference SE196337 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	7 Water
Date documentation received	12/8/2019	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	3.6°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

### COMMENTS

1 water sample has been placed on hold as no tests have been assigned for it. This sample will not be processed.

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## SAMPLE RECEIPT ADVICE

SE196337

## CLIENT DETAILS

Client EI AUSTRALIA

Project E23648.E02 7 Luxford Rd.Mt Druitt, NSW

## SUMMARY OF ANALYSIS

No.	Sample ID	Conductivity and TDS by Calculation - Water	Metals in Water (Dissolved) by ICPOES	PAH (Polynuclear Aromatic Hydrocarbons) in Water	Total Phenolics in Water	Trace Metals (Dissolved) in Water by ICPMS	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
001	GWBHIM-1	1	1	22	1	7	10	78	7
002	GWBH2M-1	1	1	22	1	7	10	78	7
003	GWBH3M-1	1	1	22	1	7	10	78	7
004	GWQD-1	-	-	-	-	7	10	11	7
005	GWQR-1	-	-	-	-	7	10	11	7
006	GWQTB	-	-	-	-	-	-	11	-
007	GWQTS	-	-	-	-	-	-	11	-

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.  
The numbers shown in the table indicate the number of results requested in each package.  
Please indicate as soon as possible should your request differ from these details.  
Testing as per this table shall commence immediately unless the client intervenes with a correction.



## SAMPLE RECEIPT ADVICE

SE196337

### CLIENT DETAILS

Client EI AUSTRALIA

Project E23648.E02 7 Luxford Rd.Mt Druitt, NSW

### SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water
001	GWBHIM-1	1
002	GWBH2M-1	1
003	GWBH3M-1	1
004	GWQD-1	1
005	GWQR-1	1

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.  
The numbers shown in the table indicate the number of results requested in each package.  
Please indicate as soon as possible should your request differ from these details .  
Testing as per this table shall commence immediately unless the client intervenes with a correction .

[illegible]



## Sample Receipt Advice

Company name: EI Australia  
Contact name: Luiza Barbosa  
Project name: 7 LUXFORD ROAD MOUNT DRUITT NSW  
Project ID: E23648  
COC number: Not provided  
Turn around time: 5 Day  
Date/Time received: Aug 12, 2019 3:50 PM  
Eurofins reference: 670790

### Sample information


- ☒ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☒ 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.
- ☒ Split sample sent to requested external lab.
- ☒ 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:

Alena Bounkeua on Phone : or by e.mail: [AlenaBounkeua@eurofins.com](mailto:AlenaBounkeua@eurofins.com)

Results will be delivered electronically via e.mail to Luiza Barbosa - [luiza.barbosa@eiaustralia.com.au](mailto:luiza.barbosa@eiaustralia.com.au).

Sheet <u>1</u> of <u>1</u>			Sample Matrix			Analysis												Comments			
Site: <u>7 Luxford Road, Mount Druitt, NSW</u>			Project No: <u>E23648, E02</u>																HM A Arsenic Cadmium Chromium Copper Lead Mercury Nickel Zinc		
Laboratory: <b>EnviroLab Services</b> 12 Ashley Street, CHATSWOOD NSW 2067 P: 02 9910 6200																			HM B Arsenic Cadmium Chromium Lead Mercury Nickel		
Sample ID	Laboratory ID	Container Type	Sampling		WATER	SOIL	OTHERS (i.e. Filter, Paint, etc.)	HM A / TRH/BTEX/PAHs OC/OP/PCB/Asbestos	HM A / TRH/BTEX/PAHs	HM A / TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / OEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	SPOCAS	PFAS	TCLP HM B / PAH	
			Date	Time																	
GW.Q.T.1	①	S,P,2xVC	9/8/19	AM/PM	X					X											
Container Type: J= solvent washed, acid rinsed, Teflon sealed, glass jar S= solvent washed, acid rinsed glass bottle P= natural HDPE plastic bottle VC= glass vial, Teflon Septum ZLB = Zip-Lock Bag					Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.													Report with EI Waste Classification Table <input type="checkbox"/>			
					Sampler's Name (EI): Print					Received by (EnviroLab) Print					EnviroLab Services 12 Ashley St Chatswood NSW 2067 Ph: (02) 9910 6200						
					Signature					Signature					Job No: <u>223608</u>						
					Date					Date					Date Received: <u>12/8/19</u>						
															Received by: <u>P</u>						
															Temp/Cool/Ambient <u>P</u>						
															Cooling-Ice/Insack <u>14.2</u>						
															Security-Intact/Broken/None <u>14.2</u>						
 Suite 6.01, 55 Miller Street, PYRMONT NSW 2009 Ph: 9516 0722 lab@eiaustralia.com.au					<b>IMPORTANT:</b> Please e-mail laboratory results to: lab@eiaustralia.com.au																

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## Appendix H – Laboratory Analytical Reports

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## CLIENT DETAILS

Contact Luiza Barbosa  
Client EI AUSTRALIA  
Address SUITE 6.01  
55 MILLER STREET  
PYRMONT NSW 2009

Telephone 61 2 95160722  
Facsimile (Not specified)  
Email Luiza.Barbosa@eiaustralia.com.au

Project E23648.E02 - 7 Luxford Road Mount Dwyer  
Order Number E23648.E02  
Samples 21

## LABORATORY DETAILS

Manager Huong Crawford  
Laboratory SGS Alexandria Environmental  
Address Unit 16, 33 Maddox St  
Alexandria NSW 2015

Telephone +61 2 8594 0400  
Facsimile +61 2 8594 0499  
Email au.environmental.sydney@sgs.com

SGS Reference SE196046 R0  
Date Received 2/8/2019  
Date Reported 9/8/2019

## COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Identifier Ravee Sivasubramaniam.

## SIGNATORIES



**Akheeqar Beniamen**  
Chemist



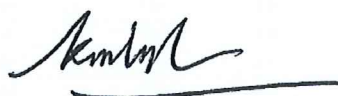
**Bennet Lo**  
Senior Organic Chemist/Metals Chemist



**Dong Liang**  
Metals/Inorganics Team Leader



**Kamrul Ahsan**  
Senior Chemist



**Ly Kim Ha**  
Organic Section Head



**Ravee Sivasubramaniam**  
Hygiene Team Leader



# ANALYTICAL RESULTS

SE196046 R0

VOC's in Soil [AN433] Tested: 5/8/2019

PARAMETER	UOM	LOR	BH1M_0.4-0.5	BH1M_0.7-0.8	BH2M_0.2-0.3	BH2M_0.6-0.7	BH3M_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			1/8/2019	1/8/2019	1/8/2019	1/8/2019	1/8/2019
			SE196046.001	SE196046.002	SE196046.003	SE196046.004	SE196046.005
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH3M_0.7-0.8	BH4_0.4-0.5	BH5_0.2-0.3	BH6_0.2-0.3	BH7_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			1/8/2019	1/8/2019	1/8/2019	1/8/2019	1/8/2019
			SE196046.006	SE196046.007	SE196046.008	SE196046.009	SE196046.010
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH7_0.7-0.8	BH8_0.2-0.3	BH9_0.2-0.3	BH9_0.7-0.8	BH10_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			1/8/2019	1/8/2019	1/8/2019	1/8/2019	1/8/2019
			SE196046.011	SE196046.012	SE196046.013	SE196046.014	SE196046.015
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH10_0.6-0.7	BH11_0.5-0.6	BHQD1	BHQT8	BHQTS
			SOIL	SOIL	SOIL	SOIL	SOIL
			1/8/2019	1/8/2019	1/8/2019	1/8/2019	1/8/2019
			SE196046.016	SE196046.017	SE196046.018	SE196046.020	SE196046.021
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[103%]
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[98%]
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[96%]
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	[96%]
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[96%]
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	-
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	-
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-



Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 5/8/2019

PARAMETER	UOM	LOR	BH1M_0.4-0.5	BH1M_0.7-0.8	BH2M_0.2-0.3	BH2M_0.6-0.7	BH3M_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			1/8/2019 SE196046.001	1/8/2019 SE196046.002	1/8/2019 SE196046.003	1/8/2019 SE196046.004	1/8/2019 SE196046.005
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH3M_0.7-0.8	BH4_0.4-0.5	BH5_0.2-0.3	BH6_0.2-0.3	BH7_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			1/8/2019 SE196046.006	1/8/2019 SE196046.007	1/8/2019 SE196046.008	1/8/2019 SE196046.009	1/8/2019 SE196046.010
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH7_0.7-0.8	BH8_0.2-0.3	BH9_0.2-0.3	BH9_0.7-0.8	BH10_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			1/8/2019 SE196046.011	1/8/2019 SE196046.012	1/8/2019 SE196046.013	1/8/2019 SE196046.014	1/8/2019 SE196046.015
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH10_0.6-0.7	BH11_0.5-0.6	BHQD1
			SOIL	SOIL	SOIL
			-	-	-
			1/8/2019 SE196046.016	1/8/2019 SE196046.017	1/8/2019 SE196046.018
TRH C6-C9	mg/kg	20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25



## ANALYTICAL RESULTS

SE196046 R0

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 5/8/2019

PARAMETER	UOM	LOR	BH1M_0.4-0.5	BH1M_0.7-0.8	BH2M_0.2-0.3	BH2M_0.6-0.7	BH3M_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			1/8/2019 SE196046.001	1/8/2019 SE196046.002	1/8/2019 SE196046.003	1/8/2019 SE196046.004	1/8/2019 SE196046.005
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH3M_0.7-0.8	BH4_0.4-0.5	BH5_0.2-0.3	BH6_0.2-0.3	BH7_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			1/8/2019 SE196046.006	1/8/2019 SE196046.007	1/8/2019 SE196046.008	1/8/2019 SE196046.009	1/8/2019 SE196046.010
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH7_0.7-0.8	BH8_0.2-0.3	BH9_0.2-0.3	BH9_0.7-0.8	BH10_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			1/8/2019 SE196046.011	1/8/2019 SE196046.012	1/8/2019 SE196046.013	1/8/2019 SE196046.014	1/8/2019 SE196046.015
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210



TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 5/8/2019 (continued)

PARAMETER	UOM	LOR	BH10_0.6-0.7	BH11_0.5-0.6	BHQD1
			SOIL - 1/8/2019 SE196046.016	SOIL - 1/8/2019 SE196046.017	SOIL - 1/8/2019 SE196046.018
TRH C10-C14	mg/kg	20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210



# ANALYTICAL RESULTS

SE196046 R0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 5/8/2019

PARAMETER	UOM	LOR	BH1M_0.4-0.5	BH1M_0.7-0.8	BH2M_0.2-0.3	BH2M_0.6-0.7	BH3M_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			1/8/2019 SE196046.001	1/8/2019 SE196046.002	1/8/2019 SE196046.003	1/8/2019 SE196046.004	1/8/2019 SE196046.005
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	BH3M_0.7-0.8	BH4_0.4-0.5	BH5_0.2-0.3	BH6_0.2-0.3	BH7_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			1/8/2019 SE196046.006	1/8/2019 SE196046.007	1/8/2019 SE196046.008	1/8/2019 SE196046.009	1/8/2019 SE196046.010
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8



PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 5/8/2019 (continued)

PARAMETER	UOM	LOR	BH7_0.7-0.8	BH8_0.2-0.3	BH9_0.2-0.3	BH9_0.7-0.8	BH10_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			1/8/2019 SE196046.011	1/8/2019 SE196046.012	1/8/2019 SE196046.013	1/8/2019 SE196046.014	1/8/2019 SE196046.015
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	BH10_0.6-0.7	BH11_0.5-0.6
			SOIL	SOIL
			1/8/2019 SE196046.016	1/8/2019 SE196046.017
Naphthalene	mg/kg	0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8



## ANALYTICAL RESULTS

SE196046 R0

OC Pesticides in Soil [AN420] Tested: 5/8/2019

PARAMETER	UOM	LOR	BH1M_0.4-0.5	BH2M_0.2-0.3	BH3M_0.2-0.3	BH4_0.4-0.6	BH5_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			1/8/2019 SE196046.001	1/8/2019 SE196046.003	1/8/2019 SE196046.005	1/8/2019 SE196046.007	1/8/2019 SE196046.008
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1



OC Pesticides in Soil [AN420] Tested: 5/8/2019 (continued)

PARAMETER	UOM	LOR	BH6_0.2-0.3	BH7_0.2-0.3	BH8_0.2-0.3	BH9_0.2-0.3	BH10_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			1/8/2019 SE196046.009	1/8/2019 SE196046.010	1/8/2019 SE196046.012	1/8/2019 SE196046.013	1/8/2019 SE196046.015
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1



## ANALYTICAL RESULTS

SE196046 R0

OC Pesticides in Soil [AN420] Tested: 5/8/2019 (continued)

			BH11_0.6-0.6
			SOIL
			1/8/2019
PARAMETER	UOM	LOR	SE196046.017
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1
Lindane	mg/kg	0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1
Aldrin	mg/kg	0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2
Endrin	mg/kg	0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1
Isodrin	mg/kg	0.1	<0.1
Mirex	mg/kg	0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1

OP Pesticides in Soil [AN420] Tested: 5/8/2019

PARAMETER	UOM	LOR	BH1M_0.4-0.5	BH2M_0.2-0.3	BH3M_0.2-0.3	BH4_0.4-0.5	BH5_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			1/8/2019	1/8/2019	1/8/2019	1/8/2019	1/8/2019
			SE196046.001	SE196046.003	SE196046.005	SE196046.007	SE196046.008
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

PARAMETER	UOM	LOR	BH6_0.2-0.3	BH7_0.2-0.3	BH8_0.2-0.3	BH9_0.2-0.3	BH10_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			1/8/2019	1/8/2019	1/8/2019	1/8/2019	1/8/2019
			SE196046.009	SE196046.010	SE196046.012	SE196046.013	SE196046.015
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

PARAMETER	UOM	LOR	BH11_0.5-0.6
			SOIL
			1/8/2019
			SE196046.017
Dichlorvos	mg/kg	0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2
Malathion	mg/kg	0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2
Methidathion	mg/kg	0.5	<0.5
Ethion	mg/kg	0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7





# ANALYTICAL RESULTS

SE196046 R0

PCBs in Soil [AN420] Tested: 5/8/2019

PARAMETER	UOM	LOR	BH1M_0.4-0.5	BH2M_0.2-0.3	BH3M_0.2-0.3	BH4_0.4-0.5	BH5_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			1/8/2019	1/8/2019	1/8/2019	1/8/2019	1/8/2019
			SE196046.001	SE196046.003	SE196046.005	SE196046.007	SE196046.008
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	BH6_0.2-0.3	BH7_0.2-0.3	BH8_0.2-0.3	BH9_0.2-0.3	BH10_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			1/8/2019	1/8/2019	1/8/2019	1/8/2019	1/8/2019
			SE196046.009	SE196046.010	SE196046.012	SE196046.013	SE196046.015
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	BH11_0.5-0.6
			SOIL
			1/8/2019
			SE196046.017
Arochlor 1016	mg/kg	0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1



Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 5/8/2019

PARAMETER	UOM	LOR	BH1M_0.4-0.5	BH1M_0.7-0.8	BH2M_0.2-0.3	BH2M_0.6-0.7	BH3M_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			1/8/2019	1/8/2019	1/8/2019	1/8/2019	1/8/2019
			SE196046.001	SE196046.002	SE196046.003	SE196046.004	SE196046.005
Arsenic, As	mg/kg	1	4	3	2	2	2
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	11	6.7	6.7	6.0	11
Copper, Cu	mg/kg	0.5	9.7	9.2	10	6.9	12
Lead, Pb	mg/kg	1	18	9	25	9	12
Nickel, Ni	mg/kg	0.5	4.6	2.3	5.1	1.4	3.9
Zinc, Zn	mg/kg	2	14	9.7	61	9.5	17
Barium, Ba	mg/kg	0.5	56	15	150	120	180

PARAMETER	UOM	LOR	BH3M_0.7-0.8	BH4_0.4-0.5	BH5_0.2-0.3	BH6_0.2-0.3	BH7_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			1/8/2019	1/8/2019	1/8/2019	1/8/2019	1/8/2019
			SE196046.006	SE196046.007	SE196046.008	SE196046.009	SE196046.010
Arsenic, As	mg/kg	1	2	2	1	2	2
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	4.1	10	1.6	1.4	1.0
Copper, Cu	mg/kg	0.5	8.0	13	1.9	4.4	2.7
Lead, Pb	mg/kg	1	5	20	2	2	1
Nickel, Ni	mg/kg	0.5	3.9	6.1	3.9	9.7	5.4
Zinc, Zn	mg/kg	2	21	56	2.4	4.4	2.5
Barium, Ba	mg/kg	0.5	77	180	3.7	3.3	1.2

PARAMETER	UOM	LOR	BH7_0.7-0.8	BH8_0.2-0.3	BH9_0.2-0.3	BH9_0.7-0.8	BH10_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			1/8/2019	1/8/2019	1/8/2019	1/8/2019	1/8/2019
			SE196046.011	SE196046.012	SE196046.013	SE196046.014	SE196046.015
Arsenic, As	mg/kg	1	2	5	3	3	3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	6.9	11	6.7	8.1	9.4
Copper, Cu	mg/kg	0.5	14	15	36	13	14
Lead, Pb	mg/kg	1	10	17	11	11	18
Nickel, Ni	mg/kg	0.5	3.3	6.7	64	2.5	6.1
Zinc, Zn	mg/kg	2	16	22	68	16	21
Barium, Ba	mg/kg	0.5	260	100	120	210	270

PARAMETER	UOM	LOR	BH10_0.6-0.7	BH11_0.5-0.6	BHQD1
			SOIL	SOIL	SOIL
			1/8/2019	1/8/2019	1/8/2019
			SE196046.016	SE196046.017	SE196046.018
Arsenic, As	mg/kg	1	4	4	3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	12	9.1	9.7
Copper, Cu	mg/kg	0.5	18	16	13
Lead, Pb	mg/kg	1	21	16	23
Nickel, Ni	mg/kg	0.5	5.8	5.0	6.0
Zinc, Zn	mg/kg	2	17	20	20
Barium, Ba	mg/kg	0.5	230	470	93



## ANALYTICAL RESULTS

SE196046 R0

Mercury in Soil [AN312] Tested: 5/8/2019

			BH1M_0.4-0.5	BH1M_0.7-0.8	BH2M_0.2-0.3	BH2M_0.6-0.7	BH3M_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			1/8/2019	1/8/2019	1/8/2019	1/8/2019	1/8/2019
PARAMETER	UOM	LOR	SE196046.001	SE196046.002	SE196046.003	SE196046.004	SE196046.005
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

			BH3M_0.7-0.8	BH4_0.4-0.5	BH5_0.2-0.3	BH6_0.2-0.3	BH7_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			1/8/2019	1/8/2019	1/8/2019	1/8/2019	1/8/2019
PARAMETER	UOM	LOR	SE196046.006	SE196046.007	SE196046.008	SE196046.009	SE196046.010
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

			BH7_0.7-0.8	BH8_0.2-0.3	BH9_0.2-0.3	BH9_0.7-0.8	BH10_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			1/8/2019	1/8/2019	1/8/2019	1/8/2019	1/8/2019
PARAMETER	UOM	LOR	SE196046.011	SE196046.012	SE196046.013	SE196046.014	SE196046.015
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

			BH10_0.6-0.7	BH11_0.5-0.6	BHQD1
			SOIL	SOIL	SOIL
			-	-	-
			1/8/2019	1/8/2019	1/8/2019
PARAMETER	UOM	LOR	SE196046.016	SE196046.017	SE196046.018
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05



Moisture Content [AN002] Tested: 5/8/2019

PARAMETER	UOM	LOR	BH1M_0.4-0.5	BH1M_0.7-0.8	BH2M_0.2-0.3	BH2M_0.6-0.7	BH3M_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			1/8/2019 SE196046.001	1/8/2019 SE196046.002	1/8/2019 SE196046.003	1/8/2019 SE196046.004	1/8/2019 SE196046.005
% Moisture	%w/w	0.5	14	17	9.3	14	14

PARAMETER	UOM	LOR	BH3M_0.7-0.8	BH4_0.4-0.5	BH5_0.2-0.3	BH6_0.2-0.3	BH7_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			1/8/2019 SE196046.006	1/8/2019 SE196046.007	1/8/2019 SE196046.008	1/8/2019 SE196046.009	1/8/2019 SE196046.010
% Moisture	%w/w	0.5	17	15	2.6	2.8	4.6

PARAMETER	UOM	LOR	BH7_0.7-0.8	BH8_0.2-0.3	BH9_0.2-0.3	BH9_0.7-0.8	BH10_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			1/8/2019 SE196046.011	1/8/2019 SE196046.012	1/8/2019 SE196046.013	1/8/2019 SE196046.014	1/8/2019 SE196046.015
% Moisture	%w/w	0.5	18	16	13	19	12

PARAMETER	UOM	LOR	BH10_0.6-0.7	BH11_0.5-0.6	BHQD1	BHQT6
			SOIL	SOIL	SOIL	SOIL
			-	-	-	-
			1/8/2019 SE196046.016	1/8/2019 SE196046.017	1/8/2019 SE196046.018	1/8/2019 SE196046.020
% Moisture	%w/w	0.5	13	16	16	<0.5



## ANALYTICAL RESULTS

SE196046 R0

Fibre Identification in soil [AN602] Tested: 7/8/2019

			BH1M_0.4-0.5	BH2M_0.2-0.3	BH3M_0.2-0.3	BH4_0.4-0.5	BH5_0.2-0.3
			SOIL - 1/8/2019 SE196046.001	SOIL - 1/8/2019 SE196046.003	SOIL - 1/8/2019 SE196046.005	SOIL - 1/8/2019 SE196046.007	SOIL - 1/8/2019 SE196046.008
PARAMETER	UOM	LOR					
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

			BH6_0.2-0.3	BH7_0.2-0.3	BH8_0.2-0.3	BH9_0.2-0.3	BH10_0.2-0.3
			SOIL - 1/8/2019 SE196046.009	SOIL - 1/8/2019 SE196046.010	SOIL - 1/8/2019 SE196046.012	SOIL - 1/8/2019 SE196046.013	SOIL - 1/8/2019 SE196046.015
PARAMETER	UOM	LOR					
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

			BH11_0.5-0.6
			SOIL - 1/8/2019 SE196046.017
PARAMETER	UOM	LOR	
Asbestos Detected	No unit	-	No
Estimated Fibres*	%w/w	0.01	<0.01





## ANALYTICAL RESULTS

SE196046 R0

VOCs in Water [AN433] Tested: 6/8/2019

PARAMETER	UOM	LOR	BHQR
			WATER - 1/8/2019 SE196046.019
Benzene	µg/L	0.5	<0.5
Toluene	µg/L	0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5
m/p-xylene	µg/L	1	<1
o-xylene	µg/L	0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5
Total BTEX	µg/L	3	<3
Naphthalene	µg/L	0.5	<0.5



## ANALYTICAL RESULTS

SE196046 R0

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 6/8/2019

			BHQR
			WATER
			1/8/2019
PARAMETER	UOM	LOR	SE196046.019
TRH C6-C9	µg/L	40	<40
Benzene (F0)	µg/L	0.5	<0.5
TRH C6-C10	µg/L	50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50



## ANALYTICAL RESULTS

SE196046 R0

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 6/8/2019

PARAMETER	UOM	LOR	BHQR
			WATER 1/8/2019 SE196046.019
TRH C10-C14	µg/L	50	<50
TRH C15-C28	µg/L	200	<200
TRH C29-C36	µg/L	200	<200
TRH C37-C40	µg/L	200	<200
TRH >C10-C16	µg/L	60	<60
TRH >C16-C34 (F3)	µg/L	500	<500
TRH >C34-C40 (F4)	µg/L	500	<500
TRH C10-C36	µg/L	450	<450
TRH C10-C40	µg/L	650	<650
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60





## ANALYTICAL RESULTS

SE196046 R0

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 5/8/2019

			BHQR
			WATER
			1/8/2019
			SE196046.019
PARAMETER	UOM	LOR	
Arsenic, As	µg/L	1	<1
Cadmium, Cd	µg/L	0.1	<0.1
Chromium, Cr	µg/L	1	<1
Copper, Cu	µg/L	1	<1
Lead, Pb	µg/L	1	<1
Nickel, Ni	µg/L	1	<1
Zinc, Zn	µg/L	5	<5
Barium, Ba	µg/L	1	<1

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 5/8/2019

			BHQR
			WATER
			-
			1/8/2019
			SE196046.019
PARAMETER	UOM	LOR	
Mercury	mg/L	0.0001	<0.0001

## METHOD

## METHODOLOGY SUMMARY

- AN002** The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
- AN020** Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
- AN040/AN320** A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
- AN040** A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
- AN311(Perth)/AN312** Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
- AN312** Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
- AN318** Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.
- AN403** Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
- AN403** Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
- AN403** The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
- AN420** (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
- AN420** SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
- AN433** VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC's are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
- AN602** Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
- AN602** Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
- AN602** AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."



## AN602

The sample can be reported "no asbestos found at the reporting limit of 0.1 g/kg" (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if-

- (a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres);
- (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg; and
- (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

## FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
		IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.  
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the "Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.

Note that in terms of units of radioactivity:

- a. 1 Bq is equivalent to 27 pCi
- b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: [www.sgs.com.au/pv.sgsvr/en-gb/environment](http://www.sgs.com.au/pv.sgsvr/en-gb/environment).

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## ANALYTICAL REPORT



Accreditation No. 2562

### CLIENT DETAILS

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Email: Luiza.Barbosa@eiaustralia.com.au  
  
Project: E23648.E02 - 7 Luxford Road Mount Dwyer  
Order Number: E23648.E02  
Samples: 11

### LABORATORY DETAILS

Manager: Huong Crawford  
Laboratory: SGS Alexandria Environmental  
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Facsimile: +61 2 8594 0499  
Email: au.environmental.sydney@sgs.com  
  
SGS Reference: SE196046 R0  
Date Received: 02 Aug 2019  
Date Reported: 09 Aug 2019

### COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Identifier Ravee Sivasubramaniam.

### SIGNATORIES

Akheeque Beniamen  
Chemist

Bennet Lo  
Senior Organic Chemist/Metals Chemist

Dong Liang  
Metals/Inorganics Team Leader

Kamrul Ahsan  
Senior Chemist

Ly Kim Ha  
Organic Section Head

Ravee Sivasubramaniam  
Hygiene Team Leader

### RESULTS

Fibre Identification in soil

Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est. %w/w*
SE196046.001	BH1M_0.4-0.5	Soil	261g Clay, Soil, Rocks	01 Aug 2019	No Asbestos Found	<0.01
SE196046.003	BH2M_0.2-0.3	Soil	194g Clay, Soil, Rocks	01 Aug 2019	No Asbestos Found	<0.01
SE196046.005	BH3M_0.2-0.3	Soil	315g Clay, Soil, Rocks	01 Aug 2019	No Asbestos Found	<0.01
SE196046.007	BH4_0.4-0.5	Soil	214g Clay, Soil, Rocks	01 Aug 2019	No Asbestos Found	<0.01
SE196046.008	BH5_0.2-0.3	Soil	135g Clay, Sand	01 Aug 2019	No Asbestos Found	<0.01
SE196046.009	BH6_0.2-0.3	Soil	142g Clay, Sand	01 Aug 2019	No Asbestos Found	<0.01
SE196046.010	BH7_0.2-0.3	Soil	162g Clay, Sand, Plant Matter	01 Aug 2019	No Asbestos Found	<0.01
SE196046.012	BH8_0.2-0.3	Soil	143g Clay, Sand, Plant Matter	01 Aug 2019	No Asbestos Found Organic Fibres Detected	<0.01
SE196046.013	BH9_0.2-0.3	Soil	190g Clay, Sand, Soil, Rocks, Plant Matter	01 Aug 2019	No Asbestos Found Organic Fibres Detected	<0.01
SE196046.015	BH10_0.2-0.3	Soil	252g Clay, Soil, Rocks	01 Aug 2019	No Asbestos Found	<0.01
SE196046.017	BH11_0.5-0.6	Soil	168g Clay, Soil, Rocks	01 Aug 2019	No Asbestos Found	<0.01



## METHOD

## METHODOLOGY SUMMARY

- AN602 Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
- AN602 Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
- AN602 AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states: "Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
- AN602 The sample can be reported "no asbestos found at the reporting limit of 0.1 g/kg" (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if-
- (a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres);
  - (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg; and
  - (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

## FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service.
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.

Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.

Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos-containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: [www.sgs.com.au/pv.sgsvr/en-gb/environment](http://www.sgs.com.au/pv.sgsvr/en-gb/environment).

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## CERTIFICATE OF ANALYSIS 223050

### Client Details

Client	EI Australia
Attention	Lab Email
Address	Suite 6.01, 55 Miller Street, Pyrmont, NSW, 2009

### Sample Details

Your Reference	<b><u>E23648, Mount Druitt</u></b>
Number of Samples	2 Soil
Date samples received	02/08/2019
Date completed instructions received	02/08/2019

### Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.  
Samples were analysed as received from the client. Results relate specifically to the samples as received.  
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

### Report Details

Date results requested by	09/08/2019
Date of Issue	07/08/2019
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

### Results Approved By

Loren Bardwell, Senior Chemist  
Steven Luong, Organics Supervisor

### Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		223050-1
Your Reference	UNITS	BHQT1
Date Sampled		01/08/2019
Type of sample		Soil
Date extracted	-	05/08/2019
Date analysed	-	06/08/2019
TRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	<25
TRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	<25
vTPH C <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<3
Surrogate aaa-Trifluorotoluene	%	101



svTRH (C10-C40) in Soil		
Our Reference		223050-1
Your Reference	UNITS	BHQT1
Date Sampled		01/08/2019
Type of sample		Soil
Date extracted	-	05/08/2019
Date analysed	-	06/08/2019
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<50
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	<100
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50
TRH >C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	79

Client Reference: E23648, Mount Druitt

Acid Extractable metals in soil		
Our Reference		223050-1
Your Reference	UNITS	BHQT1
Date Sampled		01/08/2019
Type of sample		Soil
Date prepared	-	05/08/2019
Date analysed	-	05/08/2019
Arsenic	mg/kg	7
Cadmium	mg/kg	<0.4
Chromium	mg/kg	18
Copper	mg/kg	22
Lead	mg/kg	18
Mercury	mg/kg	<0.1
Nickel	mg/kg	10
Zinc	mg/kg	34

Moisture		
Our Reference		223050-1
Your Reference	UNITS	BHQT1
Date Sampled		01/08/2019
Type of sample		Soil
Date prepared	-	05/08/2019
Date analysed	-	06/08/2019
Moisture	%	20



**Client Reference: E23648, Mount Druitt**

Method ID	Methodology Summary
<b>Inorg-008</b>	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
<b>Metals-020</b>	Determination of various metals by ICP-AES.
<b>Metals-021</b>	Determination of Mercury by Cold Vapour AAS.
<b>Org-003</b>	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
<b>Org-003</b>	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.  F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.  Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
<b>Org-014</b>	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
<b>Org-016</b>	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
<b>Org-016</b>	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.  Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Client Reference: E23648, Mount Druitt

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	[NT]
Date extracted	-			05/08/2019	[NT]	[NT]	[NT]	[NT]	05/08/2019	[NT]
Date analysed	-			06/08/2019	[NT]	[NT]	[NT]	[NT]	06/08/2019	[NT]
TRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	96	[NT]
TRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	96	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	[NT]	[NT]	97	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	[NT]	[NT]	95	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	96	[NT]
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	101	[NT]	[NT]	[NT]	[NT]	91	[NT]

Client Reference: E23648, Mount Druitt

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	[NT]
Date extracted	-			05/08/2019	[NT]	[NT]	[NT]	[NT]	05/08/2019	[NT]
Date analysed	-			06/08/2019	[NT]	[NT]	[NT]	[NT]	06/08/2019	[NT]
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	95	[NT]
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	90	[NT]
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	113	[NT]
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	95	[NT]
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	90	[NT]
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	113	[NT]
Surrogate o-Terphenyl	%		Org-003	81	[NT]	[NT]	[NT]	[NT]	97	[NT]



Client Reference: E23648, Mount Druitt

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	[NT]
Date prepared	-			05/08/2019	[NT]	[NT]	[NT]	[NT]	05/08/2019	[NT]
Date analysed	-			05/08/2019	[NT]	[NT]	[NT]	[NT]	05/08/2019	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	112	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	102	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	113	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	113	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]

### Result Definitions

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

### Quality Control Definitions

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

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

## Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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





## ANALYTICAL REPORT



Accreditation No. 2562

### CLIENT DETAILS

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Order Number E23648.E02  
Samples 7

### LABORATORY DETAILS

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SGS Reference SE196337 R0  
Date Received 12/8/2019  
Date Reported 19/8/2019

### COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

### SIGNATORIES

Akheequear Beniamdeen  
Chemist

Bennet Lo  
Senior Organic Chemist/Metals Chemist

Dong Liang  
Metals/Inorganics Team Leader

Ly Kim Ha  
Organic Section Head

Shane McDermott  
Inorganic/Metals Chemist

VOCs in Water [AN433] Tested: 14/8/2019

PARAMETER	UOM	LOR	GWBHIM-1	GWBH2M-1	GWBH3M-1	GWQD-1	GWQR-1
			WATER	WATER	WATER	WATER	WATER
			9/8/2019 SE196337.001	9/8/2019 SE196337.002	9/8/2019 SE196337.003	9/8/2019 SE196337.004	9/8/2019 SE196337.005
Benzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	0.9
Ethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
m/p-xylene	µg/L	1	<1	<1	<1	<1	<1
o-xylene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Total BTEX	µg/L	3	<3	<3	<3	<3	<3
Dichlorodifluoromethane (CFC-12)	µg/L	5	<5	<5	<5	-	-
Chloromethane	µg/L	5	<5	<5	<5	-	-
Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3	<0.3	<0.3	-	-
Bromomethane	µg/L	10	<10	<10	<10	-	-
Chloroethane	µg/L	5	<5	<5	<5	-	-
Trichlorofluoromethane	µg/L	1	<1	<1	<1	-	-
Acetone (2-propanone)	µg/L	10	<10	<10	<10	-	-
Iodomethane	µg/L	5	<5	<5	<5	-	-
1,1-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Acrylonitrile	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Dichloromethane (Methylene chloride)	µg/L	5	<5	<5	<5	-	-
Allyl chloride	µg/L	2	<2	<2	<2	-	-
Carbon disulfide	µg/L	2	<2	<2	<2	-	-
trans-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
MTBE (Methyl-tert-butyl ether)	µg/L	2	<2	<2	<2	-	-
1,1-dichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Vinyl acetate	µg/L	10	<10	<10	<10	-	-
MEK (2-butanone)	µg/L	10	<10	<10	<10	-	-
cis-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Bromochloromethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Chloroform (THM)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
2,2-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,1-trichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Carbon tetrachloride	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Dibromomethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
2-nitropropane	µg/L	100	<100	<100	<100	-	-
Bromodichloromethane (THM)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
MIBK (4-methyl-2-pentanone)	µg/L	5	<5	<5	<5	-	-
cis-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
trans-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,2-trichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,3-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Dibromochloromethane (THM)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
2-hexanone (MBK)	µg/L	5	<5	<5	<5	-	-
1,2-dibromoethane (EDB)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Chlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Bromoform (THM)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
cis-1,4-dichloro-2-butene	µg/L	1	<1	<1	<1	-	-
Styrene (Vinyl benzene)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,3-trichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
trans-1,4-dichloro-2-butene	µg/L	1	<1	<1	<1	-	-



# ANALYTICAL RESULTS

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VOCs in Water [AN433] Tested: 14/8/2019 (continued)

PARAMETER	UOM	LOR	GWBH1M-1	GWBH2M-1	GWBH3M-1	GWQD-1	GWQR-1
			WATER	WATER	WATER	WATER	WATER
			9/8/2019 SE196337.001	9/8/2019 SE196337.002	9/8/2019 SE196337.003	9/8/2019 SE196337.004	9/8/2019 SE196337.005
Isopropylbenzene (Cumene)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Bromobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
n-propylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
2-chlorotoluene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
4-chlorotoluene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,3,5-trimethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
tert-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,4-trimethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
sec-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,3-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,4-dichlorobenzene	µg/L	0.3	<0.3	<0.3	<0.3	-	-
p-isopropyltoluene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
n-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,4-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Hexachlorobutadiene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,3-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Total VOC	µg/L	10	<10	<10	<10	-	-



VOCs in Water [AN433] Tested: 14/8/2019 (continued)

PARAMETER	UOM	LOR	GWQTB	GWQTS
			WATER 9/8/2019 SE196337.006	WATER 9/8/2019 SE196337.007
Benzene	µg/L	0.5	<0.5	[99%]
Toluene	µg/L	0.5	<0.5	[99%]
Ethylbenzene	µg/L	0.5	<0.5	[97%]
m/p-xylene	µg/L	1	<1	[97%]
o-xylene	µg/L	0.5	<0.5	98%
Naphthalene	µg/L	0.5	<0.5	-
Total Xylenes	µg/L	1.5	<1.5	-
Total BTEX	µg/L	3	<3	-
Dichlorodifluoromethane (CFC-12)	µg/L	5	-	-
Chloromethane	µg/L	5	-	-
Vinyl chloride (Chloroethene)	µg/L	0.3	-	-
Bromomethane	µg/L	10	-	-
Chloroethane	µg/L	5	-	-
Trichlorofluoromethane	µg/L	1	-	-
Acetone (2-propanone)	µg/L	10	-	-
Iodomethane	µg/L	5	-	-
1,1-dichloroethene	µg/L	0.5	-	-
Acrylonitrile	µg/L	0.5	-	-
Dichloromethane (Methylene chloride)	µg/L	5	-	-
Allyl chloride	µg/L	2	-	-
Carbon disulfide	µg/L	2	-	-
trans-1,2-dichloroethene	µg/L	0.5	-	-
MIBE (Methyl-tert-butyl ether)	µg/L	2	-	-
1,1-dichloroethane	µg/L	0.5	-	-
Vinyl acetate	µg/L	10	-	-
MEK (2-butanone)	µg/L	10	-	-
cis-1,2-dichloroethene	µg/L	0.5	-	-
Bromochloromethane	µg/L	0.5	-	-
Chloroform (THM)	µg/L	0.5	-	-
2,2-dichloropropane	µg/L	0.5	-	-
1,2-dichloroethane	µg/L	0.5	-	-
1,1,1-trichloroethane	µg/L	0.5	-	-
1,1-dichloropropene	µg/L	0.5	-	-
Carbon tetrachloride	µg/L	0.5	-	-
Dibromomethane	µg/L	0.5	-	-
1,2-dichloropropane	µg/L	0.5	-	-
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	-	-
2-nitropropane	µg/L	100	-	-
Bromodichloromethane (THM)	µg/L	0.5	-	-
MIBK (4-methyl-2-pentanone)	µg/L	5	-	-
cis-1,3-dichloropropene	µg/L	0.5	-	-
trans-1,3-dichloropropene	µg/L	0.5	-	-
1,1,2-trichloroethane	µg/L	0.5	-	-
1,3-dichloropropane	µg/L	0.5	-	-
Dibromochloromethane (THM)	µg/L	0.5	-	-
2-hexanone (MBK)	µg/L	5	-	-
1,2-dibromoethane (EDB)	µg/L	0.5	-	-
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	-	-
1,1,1,2-tetrachloroethane	µg/L	0.5	-	-
Chlorobenzene	µg/L	0.5	-	-
Bromoform (THM)	µg/L	0.5	-	-
cis-1,4-dichloro-2-butene	µg/L	1	-	-
Styrene (Vinyl benzene)	µg/L	0.5	-	-
1,1,2,2-tetrachloroethane	µg/L	0.5	-	-
1,2,3-trichloropropane	µg/L	0.5	-	-
trans-1,4-dichloro-2-butene	µg/L	1	-	-



## ANALYTICAL RESULTS

SE196337 R0

VOCs in Water [AN433] Tested: 14/8/2019 (continued)

PARAMETER	UOM	LOR	GWQTB	GWQTS
			WATER	WATER
			9/8/2019 SE196337.006	9/8/2019 SE196337.007
Isopropylbenzene (Cumene)	µg/L	0.5	-	-
Bromobenzene	µg/L	0.5	-	-
n-propylbenzene	µg/L	0.5	-	-
2-chlorotoluene	µg/L	0.5	-	-
4-chlorotoluene	µg/L	0.5	-	-
1,3,5-trimethylbenzene	µg/L	0.5	-	-
tert-butylbenzene	µg/L	0.5	-	-
1,2,4-trimethylbenzene	µg/L	0.5	-	-
sec-butylbenzene	µg/L	0.5	-	-
1,3-dichlorobenzene	µg/L	0.5	-	-
1,4-dichlorobenzene	µg/L	0.3	-	-
p-isopropyltoluene	µg/L	0.5	-	-
1,2-dichlorobenzene	µg/L	0.5	-	-
n-butylbenzene	µg/L	0.5	-	-
1,2-dibromo-3-chloropropane	µg/L	0.5	-	-
1,2,4-trichlorobenzene	µg/L	0.5	-	-
Hexachlorobutadiene	µg/L	0.5	-	-
1,2,3-trichlorobenzene	µg/L	0.5	-	-
Total VOC	µg/L	10	-	-

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 14/8/2019

PARAMETER	UOM	LOR	GWBHIM-1	GWBH2M-1	GWBH3M-1	GWQD-1	GWQR-1
			WATER	WATER	WATER	WATER	WATER
			9/8/2019 SE196337.001	9/8/2019 SE196337.002	9/8/2019 SE196337.003	9/8/2019 SE196337.004	9/8/2019 SE196337.005
TRH C6-C9	µg/L	40	<40	<40	<40	<40	<40
Benzene (F0)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TRH C6-C10	µg/L	50	<50	<50	<50	<50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	<50	<50	<50





## ANALYTICAL RESULTS

SE196337 R0

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 14/8/2019

PARAMETER	UOM	LOR	GWBH1M-1	GWBH2M-1	GWBH3M-1	GWQD-1	GWQR-1
			WATER	WATER	WATER	WATER	WATER
			9/8/2019 SE196337.001	9/8/2019 SE196337.002	9/8/2019 SE196337.003	9/8/2019 SE196337.004	9/8/2019 SE196337.005
TRH C10-C14	µg/L	50	<50	<50	<50	<50	<50
TRH C15-C28	µg/L	200	<200	<200	<200	<200	<200
TRH C29-C36	µg/L	200	<200	<200	<200	<200	<200
TRH C37-C40	µg/L	200	<200	<200	<200	<200	<200
TRH >C10-C16	µg/L	60	<60	<60	<60	<60	<60
TRH >C16-C34 (F3)	µg/L	500	<500	<500	<500	<500	<500
TRH >C34-C40 (F4)	µg/L	500	<500	<500	<500	<500	<500
TRH C10-C36	µg/L	450	<450	<450	<450	<450	<450
TRH C10-C40	µg/L	650	<650	<650	<650	<650	<650
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60	<60	<60	<60	<60

## PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 14/8/2019

PARAMETER	UOM	LOR	GWBH1M-1	GWBH2M-1	GWBH3M-1
			WATER 9/8/2019 SE196337.001	WATER 9/8/2019 SE196337.002	WATER 9/8/2019 SE196337.003
Naphthalene	µg/L	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	<0.1
Total PAH (18)	µg/L	1	<1	<1	<1



## ANALYTICAL RESULTS

SE196337 R0

Total Phenolics in Water [AN289] Tested: 15/8/2019

PARAMETER	UOM	LOR	GWBH1M-1	GWBH2M-1	GWBH3M-1
			WATER	WATER	WATER
			-	-	-
			9/8/2019	9/8/2019	9/8/2019
			SE196337.001	SE196337.002	SE196337.003
Total Phenols	mg/L	0.01	<0.01	<0.01	<0.01

Conductivity and TDS by Calculation - Water [AN106] Tested: 15/8/2019

PARAMETER	UOM	LOR	GWBH1M-1	GWBH2M-1	GWBH3M-1
			WATER	WATER	WATER
			-	-	-
			9/8/2019	9/8/2019	9/8/2019
			SE196337.001	SE196337.002	SE196337.003
Conductivity @ 25 C	µS/cm	2	29000	31000	34000





## ANALYTICAL RESULTS

SE196337 R0

Metals in Water (Dissolved) by ICPOES [AN320] Tested: 15/8/2019

PARAMETER	UOM	LOR	GWBH1M-1	GWBH2M-1	GWBH3M-1
			WATER	WATER	WATER
			-	-	-
			9/8/2019 SE196337.001	9/8/2019 SE196337.002	9/8/2019 SE196337.003
Total Hardness by Calculation	mg CaCO <sub>3</sub> /L	5	4800	5400	6800

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 15/8/2019

PARAMETER	UOM	LOR	GWBH1M-1	GWBH2M-1	GWBH3M-1	GWQD-1	GWQR-1
			WATER	WATER	WATER	WATER	WATER
			-	-	-	-	-
			9/8/2019 SE196337.001	9/8/2019 SE196337.002	9/8/2019 SE196337.003	9/8/2019 SE196337.004	9/8/2019 SE196337.005
Arsenic, As	µg/L	1	<1	<1	<1	<1	<1
Cadmium, Cd	µg/L	0.1	0.1	<0.1	0.2	0.2	<0.1
Chromium, Cr	µg/L	1	<1	<1	<1	<1	<1
Copper, Cu	µg/L	1	2	<1	<1	1	<1
Lead, Pb	µg/L	1	<1	<1	<1	<1	<1
Nickel, Ni	µg/L	1	<1	2	3	<1	<1
Zinc, Zn	µg/L	5	6	<5	8	5	<5



## ANALYTICAL RESULTS

SE196337 R0

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 14/8/2019

PARAMETER	UOM	LOR	GWBH1M-1	GWBH2M-1	GWBH3M-1	GWQD-1	GWQR-1
			WATER	WATER	WATER	WATER	WATER
			-	-	-	-	-
			9/8/2019 SE196337.001	9/8/2019 SE196337.002	9/8/2019 SE196337.003	9/8/2019 SE196337.004	9/8/2019 SE196337.005
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001



## METHOD

## METHODOLOGY SUMMARY

<b>AN020</b>	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
<b>AN106</b>	Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos/cm or µS/cm @ 25°C. For soils, an extract with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Total Dissolved Salts can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. SGS use 0.6. Reference APHA 2510 B.
<b>AN106</b>	Salinity may be calculated in terms of NaCl from the sample conductivity. This assumes all soluble salts present, measured by the conductivity, are present as NaCl.
<b>AN289</b>	Analysis of Total Phenols in Soil Sediment and Water: Steam distillable phenols react with 4-aminoantipyrine at pH 7.9±0.1 in the presence of potassium ferricyanide to form a coloured antipyrine dye analysed by Discrete Analyser. Reference APHA 5530 B/D.
<b>AN311(Perth)/AN312</b>	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
<b>AN318</b>	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.
<b>AN320</b>	Metals by ICP-OES: Samples are preserved with 10% nitric acid for a wide range of metals and some non-metals. This solution is measured by Inductively Coupled Plasma. Solutions are aspirated into an argon plasma at 8000-10000K and emit characteristic energy or light as a result of electron transitions through unique energy levels. The emitted light is focused onto a diffraction grating where it is separated into components.
<b>AN320</b>	Photomultipliers or CCDs are used to measure the light intensity at specific wavelengths. This intensity is directly proportional to concentration. Corrections are required to compensate for spectral overlap between elements. Reference APHA 3120 B.
<b>AN403</b>	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). Where F2 is corrected for Naphthalene, the VOC data for Naphthalene is used.
<b>AN403</b>	Additionally, the volatile C6-C9/C6-C10 fractions may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Silica) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
<b>AN403</b>	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
<b>AN420</b>	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
<b>AN433</b>	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC's are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

## FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
		IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.  
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the "Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.

Note that in terms of units of radioactivity:

- 1 Bq is equivalent to 27 pCi
- 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: [www.sgs.com.au.pv.sgsvr/en-gb/environment](http://www.sgs.com.au.pv.sgsvr/en-gb/environment).

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**Company Name:** El Australia  
**Address:** Suite 6.01, 55 Miller Street  
Pyrmont  
NSW 2009  
  
**Project Name:** 7 LUXFORD ROAD MOUNT DRUITT NSW  
**Project ID:** E23648

**Order No.:**  
**Report #:** 670790  
**Phone:** 02 9516 0722  
**Fax:**

**Received:** Aug 12, 2019 3:50 PM  
**Due:** Aug 19, 2019  
**Priority:** 5 Day  
**Contact Name:** Luiza Barbosa

Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail						Per- and Polyfluorinated Substances (PFASs)
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						
Brisbane Laboratory - NATA Site # 20794						X
Perth Laboratory - NATA Site # 23736						
External Laboratory						
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID	
1	GWBH1M_1	Aug 09, 2019		Water	S19-Au15752	X
2	GWBH2M_1	Aug 09, 2019		Water	S19-Au15753	X
3	GWBH3M_1	Aug 09, 2019		Water	S19-Au15754	X
Test Counts						3



El Australia  
 Suite 6.01, 55 Miller Street  
 Pyrmont  
 NSW 2009



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:** Luiza Barbosa

**Report** 670790-W  
**Project name** 7 LUXFORD ROAD MOUNT DRUITT NSW  
**Project ID** E23648  
**Received Date** Aug 12, 2019

Client Sample ID			GWBH1M_1 Water	GWBH2M_1 Water	GWBH3M_1 Water
Sample Matrix			S19-Au15752	S19-Au15753	S19-Au15754
Eurofins Sample No.			Aug 09, 2019	Aug 09, 2019	Aug 09, 2019
Date Sampled					
Test/Reference	LOR	Unit			
<b>Perfluoroalkyl carboxylic acids (PFCAs)</b>					
Perfluorobutanoic acid (PFBA) <sup>N11</sup>	0.05	ug/L	< 0.05	< 0.05	< 0.05
Perfluoropentanoic acid (PFPeA) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01
Perfluorohexanoic acid (PFHxA) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01
Perfluorononanoic acid (PFNA) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA) <sup>N15</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	109	116	123
13C5-PFPeA (surr.)	1	%	95	101	100
13C5-PFHxA (surr.)	1	%	139	144	147
13C4-PFHpA (surr.)	1	%	117	125	121
13C8-PFOA (surr.)	1	%	125	142	134
13C5-PFNA (surr.)	1	%	87	100	88
13C6-PFDA (surr.)	1	%	103	104	105
13C2-PFUnDA (surr.)	1	%	82	84	82
13C2-PFDoDA (surr.)	1	%	96	84	83
13C2-PFTeDA (surr.)	1	%	78	69	69
<b>Perfluoroalkyl sulfonamido substances</b>					
Perfluorooctane sulfonamide (FOSA) <sup>N11</sup>	0.05	ug/L	< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) <sup>N11</sup>	0.05	ug/L	< 0.05	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) <sup>N11</sup>	0.05	ug/L	< 0.05	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) <sup>N11</sup>	0.05	ug/L	< 0.05	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) <sup>N11</sup>	0.05	ug/L	< 0.05	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) <sup>N11</sup>	0.05	ug/L	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) <sup>N11</sup>	0.05	ug/L	< 0.05	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	74	88	83
D3-N-MeFOSA (surr.)	1	%	49	57	48
D5-N-EtFOSA (surr.)	1	%	64	62	59



Client Sample ID			GWBH1M_1	GWBH2M_1	GWBH3M_1
Sample Matrix			Water	Water	Water
Eurofins Sample No.			S19-Au15752	S19-Au15753	S19-Au15754
Date Sampled			Aug 09, 2019	Aug 09, 2019	Aug 09, 2019
Test/Reference	LOR	Unit			
<b>Perfluoroalkyl sulfonamido substances</b>					
D7-N-MeFOSE (surr.)	1	%	44	44	45
D9-N-EtFOSE (surr.)	1	%	57	51	59
D5-N-EtFOSAA (surr.)	1	%	44	49	47
D3-N-MeFOSAA (surr.)	1	%	38	46	41
<b>Perfluoroalkyl sulfonic acids (PFSA's)</b>					
Perfluorobutanesulfonic acid (PFBS) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01
Perfluorononanesulfonic acid (PFNS) <sup>N15</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS) <sup>N15</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS) <sup>N15</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS) <sup>N15</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS) <sup>N15</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	129	145	137
18O2-PFHxS (surr.)	1	%	113	110	104
13C8-PFOS (surr.)	1	%	100	107	107
<b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)</b>					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) <sup>N11</sup>	0.05	ug/L	< 0.05	< 0.05	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) <sup>N15</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01
13C2-4:2 FTSA (surr.)	1	%	182	198	INT
13C2-6:2 FTSA (surr.)	1	%	84	99	87
13C2-8:2 FTSA (surr.)	1	%	55	57	61
<b>PFASs Summations</b>					
Sum (PFHxS + PFOS)*	0.01	ug/L	< 0.01	< 0.01	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01	< 0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	< 0.05	< 0.05	< 0.05
Sum of PFASs (n=30)*	0.1	ug/L	< 0.1	< 0.1	< 0.1

## 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.

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
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Brisbane	Aug 13, 2019	14 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Brisbane	Aug 13, 2019	14 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSA)s	Brisbane	Aug 13, 2019	14 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s	Brisbane	Aug 13, 2019	14 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

**Company Name:** El Australia  
**Address:** Suite 6.01, 55 Miller Street  
Pyrmont  
NSW 2009  
  
**Project Name:** 7 LUXFORD ROAD MOUNT DRUITT NSW  
**Project ID:** E23648

**Order No.:**  
**Report #:** 670790  
**Phone:** 02 9516 0722  
**Fax:**

**Received:** Aug 12, 2019 3:50 PM  
**Due:** Aug 19, 2019  
**Priority:** 5 Day  
**Contact Name:** Luiza Barbosa

Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail						Per- and Polyfluorinated Substances (PFASs)
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						
Brisbane Laboratory - NATA Site # 20794						X
Perth Laboratory - NATA Site # 23736						
External Laboratory						
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID	
1	GWBH1M_1	Aug 09, 2019		Water	S19-Au15752	X
2	GWBH2M_1	Aug 09, 2019		Water	S19-Au15753	X
3	GWBH3M_1	Aug 09, 2019		Water	S19-Au15754	X
Test Counts						3



## Internal Quality Control Review and Glossary

### General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. 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 SRA.

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.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

**\*\*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

<b>Dry</b>	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
<b>LOR</b>	Limit of Reporting.
<b>SPIKE</b>	Addition of the analyte to the sample and reported as percentage recovery.
<b>RPD</b>	Relative Percent Difference between two Duplicate pieces of analysis.
<b>LCS</b>	Laboratory Control Sample - reported as percent recovery.
<b>CRM</b>	Certified Reference Material - reported as percent recovery.
<b>Method Blank</b>	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
<b>Surr - Surrogate</b>	The addition of a like compound to the analyte target and reported as percentage recovery.
<b>Duplicate</b>	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
<b>USEPA</b>	United States Environmental Protection Agency
<b>APHA</b>	American Public Health Association
<b>TCLP</b>	Toxicity Characteristic Leaching Procedure
<b>COC</b>	Chain of Custody
<b>SRA</b>	Sample Receipt Advice
<b>QSM</b>	US Department of Defense Quality Systems Manual Version 5.3
<b>CP</b>	Client Parent - QC was performed on samples pertaining to this report
<b>NCP</b>	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.
<b>TEQ</b>	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 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

### 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
<b>Method Blank</b>							
<b>Perfluoroalkyl carboxylic acids (PFCAs)</b>							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.05			0.05	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01			0.01	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.01			0.01	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.01			0.01	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01			0.01	Pass	
<b>Method Blank</b>							
<b>Perfluoroalkyl sulfonamido substances</b>							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.05			0.05	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.05			0.05	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.05			0.05	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	ug/L	< 0.05			0.05	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	ug/L	< 0.05			0.05	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.05			0.05	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.05			0.05	Pass	
<b>Method Blank</b>							
<b>Perfluoroalkyl sulfonic acids (PFSAs)</b>							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.01			0.01	Pass	
Perfluoronanesulfonic acid (PFNS)	ug/L	< 0.01			0.01	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.01			0.01	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.01			0.01	Pass	
<b>Method Blank</b>							
<b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	ug/L	< 0.05			0.05	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.01			0.01	Pass	
<b>LCS - % Recovery</b>							
<b>Perfluoroalkyl carboxylic acids (PFCAs)</b>							
Perfluorobutanoic acid (PFBA)	%	104			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	116			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	101			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	119			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	107			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	119			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	97			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	106			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	137			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	116			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	109			50-150	Pass	



Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery										
Perfluoroalkyl sulfonamido substances										
Perfluorooctane sulfonamide (FOSA)			%	104				50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)			%	102				50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)			%	114				50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)			%	110				50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)			%	92				50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)			%	100				50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)			%	111				50-150	Pass	
LCS - % Recovery										
Perfluoroalkyl sulfonic acids (PFASs)										
Perfluorobutanesulfonic acid (PFBS)			%	101				50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	106				50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	114				50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	109				50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	107				50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	110				50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	101				50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	112				50-150	Pass	
LCS - % Recovery										
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)										
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	101				50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)			%	107				50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	99				50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	101				50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1				Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery										
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1						
Perfluorobutanoic acid (PFBA)	M19-Au14732	NCP	%	99				50-150	Pass	
Perfluoropentanoic acid (PFPeA)	M19-Au14732	NCP	%	83				50-150	Pass	
Perfluorohexanoic acid (PFHxA)	M19-Au14732	NCP	%	96				50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	M19-Au14732	NCP	%	111				50-150	Pass	
Perfluorooctanoic acid (PFOA)	M19-Au14732	NCP	%	93				50-150	Pass	
Perfluorononanoic acid (PFNA)	M19-Au14732	NCP	%	105				50-150	Pass	
Perfluorodecanoic acid (PFDA)	M19-Au14732	NCP	%	91				50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	M19-Au14732	NCP	%	93				50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	M19-Au14732	NCP	%	112				50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	M19-Au14732	NCP	%	107				50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M19-Au14732	NCP	%	109				50-150	Pass	
Spike - % Recovery										
Perfluoroalkyl sulfonamido substances				Result 1						
Perfluorooctane sulfonamide (FOSA)	M19-Au14732	NCP	%	93				50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M19-Au14732	NCP	%	107				50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M19-Au14732	NCP	%	88				50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	M19-Au14732	NCP	%	110				50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	M19-Au14732	NCP	%	92				50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M19-Au14732	NCP	%	109			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M19-Au14732	NCP	%	95			50-150	Pass	
<b>Spike - % Recovery</b>									
<b>Perfluoroalkyl sulfonic acids (PFSA's)</b>				Result 1					
Perfluorobutanesulfonic acid (PFBS)	M19-Au14732	NCP	%	76			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	M19-Au14732	NCP	%	112			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M19-Au14732	NCP	%	109			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M19-Au14732	NCP	%	91			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M19-Au14732	NCP	%	90			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M19-Au14732	NCP	%	90			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	M19-Au14732	NCP	%	91			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	M19-Au14732	NCP	%	92			50-150	Pass	
<b>Spike - % Recovery</b>									
<b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)</b>				Result 1					
1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2 FTSA)	M19-Au14732	NCP	%	93			50-150	Pass	
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2 FTSA)	M19-Au14732	NCP	%	86			50-150	Pass	
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2 FTSA)	M19-Au14732	NCP	%	86			50-150	Pass	
1H,1H,2H,2H-perfluorododecanesulfonic acid (10:2 FTSA)	M19-Au14732	NCP	%	103			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
<b>Duplicate</b>									
<b>Perfluoroalkyl carboxylic acids (PFCAs)</b>				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B19-Au15576	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B19-Au15576	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B19-Au15576	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B19-Au15576	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B19-Au15576	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	B19-Au15576	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	B19-Au15576	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	B19-Au15576	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	B19-Au15576	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotridecanoic acid (PFTTrDA)	B19-Au15576	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B19-Au15576	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	



Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B19-Au15576	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B19-Au15576	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B19-Au15576	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	B19-Au15576	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	B19-Au15576	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B19-Au15576	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B19-Au15576	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B19-Au15576	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B19-Au15576	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B19-Au15576	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B19-Au15576	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B19-Au15576	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B19-Au15576	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B19-Au15576	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B19-Au15576	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B19-Au15576	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	B19-Au15576	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B19-Au15576	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B19-Au15576	NCP	ug/L	< 0.01	< 0.01	<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	Yes
Some samples have been subcontracted	No

### Qualifier Codes/Comments

Code	Description
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

## Authorised By

Alena Bounkeua	Analytical Services Manager
Bryan Wilson	Senior Analyst-PFAS (QLD)

Glenn Jackson

General 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 223668**

### **Client Details**

Client	El Australia
Attention	Ben Aggar
Address	Suite 6.01, 55 Miller Street, Pyrmont, NSW, 2009

### **Sample Details**

Your Reference	<b><u>E23648.E02, Mount Druitt</u></b>
Number of Samples	1 Water
Date samples received	12/08/2019
Date completed instructions received	12/08/2019

### **Analysis Details**

Please refer to the following pages for results, methodology summary and quality control data.  
Samples were analysed as received from the client. Results relate specifically to the samples as received.  
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

### **Report Details**

Date results requested by	19/08/2019
Date of Issue	16/08/2019

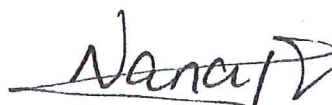
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#### **Results Approved By**

Jaimie Loa-Kum-Cheung, Metals Supervisor  
Steven Luong, Organics Supervisor

#### **Authorised By**



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water		
Our Reference		223668-1
Your Reference	UNITS	GWQT1
Date Sampled		09/08/2019
Type of sample		Water
Date extracted	-	13/08/2019
Date analysed	-	14/08/2019
TRH C <sub>6</sub> - C <sub>9</sub>	µg/L	<10
TRH C <sub>6</sub> - C <sub>10</sub>	µg/L	<10
TRH C <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	108
Surrogate toluene-d8	%	99
Surrogate 4-BFB	%	104



svTRH (C10-C40) in Water		
Our Reference		223668-1
Your Reference	UNITS	GWQT1
Date Sampled		09/08/2019
Type of sample		Water
Date extracted	-	13/08/2019
Date analysed	-	13/08/2019
TRH C <sub>10</sub> - C <sub>14</sub>	µg/L	<50
TRH C <sub>15</sub> - C <sub>28</sub>	µg/L	<100
TRH C <sub>29</sub> - C <sub>36</sub>	µg/L	<100
TRH >C <sub>10</sub> - C <sub>16</sub>	µg/L	<50
TRH >C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	µg/L	<50
TRH >C <sub>16</sub> - C <sub>34</sub>	µg/L	<100
TRH >C <sub>34</sub> - C <sub>40</sub>	µg/L	<100
Surrogate o-Terphenyl	%	105

HM in water - dissolved		
Our Reference		223668-1
Your Reference	UNITS	GWQT1
Date Sampled		09/08/2019
Type of sample		Water
Date prepared	-	13/08/2019
Date analysed	-	13/08/2019
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	0.3
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	3
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	2
Zinc-Dissolved	µg/L	11

Client Reference: E23648.E02, Mount Druitt

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



QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			13/08/2019	[NT]	[NT]	[NT]	[NT]	13/08/2019	[NT]
Date analysed	-			14/08/2019	[NT]	[NT]	[NT]	[NT]	14/08/2019	[NT]
TRH C <sub>6</sub> - C <sub>9</sub>	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	120	[NT]
TRH C <sub>6</sub> - C <sub>10</sub>	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	120	[NT]
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	121	[NT]
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	121	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	118	[NT]
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	121	[NT]
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-016	104	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate toluene-d8	%		Org-016	99	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate 4-BFB	%		Org-016	105	[NT]	[NT]	[NT]	[NT]	96	[NT]

Client Reference: E23648.E02, Mount Druitt

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			13/08/2019	[NT]	[NT]	[NT]	[NT]	13/08/2019	[NT]
Date analysed	-			13/08/2019	[NT]	[NT]	[NT]	[NT]	13/08/2019	[NT]
TRH C <sub>10</sub> - C <sub>14</sub>	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	73	[NT]
TRH C <sub>15</sub> - C <sub>28</sub>	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	70	[NT]
TRH C <sub>29</sub> - C <sub>36</sub>	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	74	[NT]
TRH >C <sub>10</sub> - C <sub>16</sub>	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	73	[NT]
TRH >C <sub>16</sub> - C <sub>34</sub>	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	70	[NT]
TRH >C <sub>34</sub> - C <sub>40</sub>	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	74	[NT]
Surrogate o-Terphenyl	%		Org-003	72	[NT]	[NT]	[NT]	[NT]	74	[NT]

Client Reference: E23648.E02, Mount Druitt

QUALITY CONTROL: HM in water - dissolved					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			13/08/2019	[NT]	[NT]	[NT]	[NT]	13/08/2019	[NT]
Date analysed	-			13/08/2019	[NT]	[NT]	[NT]	[NT]	13/08/2019	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	96	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]

### Result Definitions

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

### Quality Control Definitions

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

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



## Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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## Appendix I – QA/QC Assessment

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# Quality Control Program

## I.1 Introduction

For the purpose of assessing the quality of data presented in this report, EI collected field QC samples for analysis. The primary laboratory, SGS Testing Laboratories Company, and secondary laboratory, Envirolab Services Pty Ltd (Envirolab), also prepared and analysed internal QC samples. Details of the field and laboratory QC samples, with the allowable data acceptance ranges are presented in **Table I-1**.

**Table I.1 Sampling Data Quality Indicators**

QA/QC Measures	Data Quality Indicators
Precision – A quantitative measure of the variability (or reproducibility) of data	<p>Data precision would be assessed by reviewing the performance of blind field duplicate sample sets, through calculation of relative percentage differences (RPD). Data precision would be deemed acceptable if RPDs are found to be less than 30%. RPDs that exceed this range may be considered acceptable where:</p> <ul style="list-style-type: none"> <li>▪ Results are less than 10 times the limits of reporting (LOR);</li> <li>▪ Results are less than 20 times the LOR and the RPD is less than 50%; or</li> <li>▪ Heterogeneous materials or volatile compounds are encountered.</li> </ul>
Accuracy – A quantitative measure of the closeness of reported data to the "true" value	<p>Data accuracy would be assessed through the analysis of:</p> <ul style="list-style-type: none"> <li>▪ Split field (inter-laboratory) duplicate sample sets;</li> <li>▪ Method blanks, which are analysed for the analytes targeted in the primary samples;</li> <li>▪ Matrix spike and matrix spike duplicate sample sets;</li> <li>▪ Laboratory control samples; and</li> <li>▪ Calibration of instruments against known standards.</li> </ul>
Representativeness – The confidence (expressed qualitatively) that data are representative of each medium present onsite	<p>To ensure the data produced by the laboratory is representative of conditions encountered in the field, the laboratory would carry out the following:</p> <ul style="list-style-type: none"> <li>▪ Blank samples will be run in parallel with field samples to confirm there are no unacceptable instances of laboratory artefacts;</li> <li>▪ Review of relative percentage differences (RPD) values for field and laboratory duplicates to provide an indication that the samples are generally homogeneous, with no unacceptable instances of significant sample matrix heterogeneities; and</li> <li>▪ The appropriateness of collection methodologies, handling, storage and preservation techniques will be assessed to ensure/confirm there was minimal opportunity for sample interference or degradation (i.e. volatile loss during transport due to incorrect preservation / transport methods).</li> </ul>
Completeness – A measure of the amount of useable data from a data collection activity	<p>Analytical data sets acquired during the assessment will be evaluated as complete, upon confirmation that:</p> <ul style="list-style-type: none"> <li>▪ Standard operating procedures (SOPs) for sampling protocols were adhered to; and</li> <li>▪ Copies of all COC documentation are presented, reviewed and found to be properly completed.</li> </ul>

QA/QC Measures	Data Quality Indicators
	It can therefore be considered whether the proportion of "useable data" generated in the data collection activities is sufficient for the purposes of the land use assessment.
Comparability – The confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event	Given that a reported data set can comprise several data sets from separate sampling episodes, issues of comparability between data sets are reduced through adherence to SOPs and regulator-endorsed or published guidelines and standards on each data gathering activity. In addition the data will be collected by experienced samplers and NATA-accredited laboratory methodologies will be employed in all laboratory testing programs.

## I.2 Calculation of Relative Percentage Difference (RPD)

The RPD values were calculated using the following equation:

$$RPD = \frac{|C_O - C_R|}{[(C_O + C_R)/2]} \times 100$$

Where:

C<sub>O</sub> = Concentration obtained for the primary sample; and

C<sub>R</sub> = Concentration obtained for the blind replicate or split duplicate sample.

## I.3 Field QA/QC Data Evaluation

The field quality assurance/quality control (QA/QC) samples collected during the soil and groundwater investigations were as follows:

- Blind field duplicates;
- Inter-laboratory duplicates;
- Trip blanks;
- Trip spikes; and
- Rinsate blanks (only soil equipment rinsate)

Analytical results for tested soil and groundwater QA/QC samples, including calculated RPD values between primary and duplicate samples, are presented in **Table 3** and **Table 4** (Appendix B).

### I3.1 Soil Investigation

#### I3.1.1 Blind Field Duplicates and Inter-Laboratory Duplicate

One blind field duplicate (BFD) soil sample was collected, as follows:

- Sample BHQD1 was collected from the primary sample BH1M\_0.1-0.2 on 1 August 2019.



The preparation of the BFD sample involved the collection of a bulk quantity of soil from the same sampling point, with mixing, before dividing the material into identical sampling vessels. The duplicate sample was presented blind to the primary laboratory (SGS), to avoid any potential analytical bias.

Sample BHQT1 was collected as an inter-laboratory duplicate (ILD) of the primary sample BH1M\_0.1-0.2 on 1 August 2019. The preparation of the ILD sample was identical to the BFD sample, as described above.

Both samples (BHQT1 and BHQT1) were analysed for metals/TRH/BTEX by SGS and Envirolab, respectively (**Appendix H**) and RPD values between samples were calculated. The RPDs were within the DQIs, with the exception of arsenic (80%), chromium (59.93%), copper (51.43%) and zinc (51.85%). EI consider these variation between results is due to sample heterogeneity and still acceptable for interpretation purposes.

#### **13.1.3 Trip Blank**

One trip blank (BHQT1) sample was prepared and analysed by the primary laboratory for BTEX. Analytical results for this sample were all below the corresponding laboratory LOR, indicating that ideal sample transport and handling conditions were achieved (i.e. there was no cross-contamination during sample transport and handling).

#### **13.1.4 Trip Spike**

One trip spike (BHQT1) sample was prepared and analysed by the primary laboratory for BTEX. Analyte recoveries for this sample were 96-103%, which complied with the DQI. It was therefore concluded that satisfactory sample transport and handling conditions were achieved (i.e. there was negligible loss of volatiles, and by default semi-volatiles, during sample transport and handling).

#### **13.1.5 Rinsate**

One rinsate sample BHQR was submitted to the primary laboratory (SGS) for analysis of Metals/TRHs/BTEX. All results were reported below laboratory LOR; therefore, it was concluded that decontamination procedures performed during the field works had been effective.

### **13.2 Groundwater Investigation**

#### **13.1.1 Blind Field Duplicates**

One blind field duplicate (BFD) soil sample was collected, as follows:

- Sample GWQD-1 was collected from the primary sample GWBH1M-1 on 9 August 2019.

The preparation of the BFD sample involved the collection of groundwater from the same sampling point, with mixing, before dividing the material into identical sampling vessels. The duplicate sample was presented blind to the primary laboratory (SGS), to avoid any potential analytical bias. BFD soil samples were analysed for Metals/TRHs/BTEX (**Appendix H**) and calculated RPD values were found to be generally within the DQIs, with the exception of cadmium (66.67%) and copper (66.67%). EI therefore consider this variation between results is due to sample heterogeneity and still acceptable for interpretation purposes.

#### **13.1.2 Inter-Laboratory Duplicate**

Sample GWQT-1 was collected as an inter-laboratory duplicate (ILD) of the primary sample GWBH1M-1 on 9 August 2019. The preparation of the ILD sample was identical to the BFD sample, as described above, and was analysed for metals/TRH/BTEX by Envirolab (**Appendix H**). RPD values were generally within the DQIs with the exception of cadmium (100%), nickel (80%) and zinc (58.82%). EI therefore consider this variation between results is due to sample heterogeneity and still acceptable for interpretation purposes.

### **I3.1.3 Trip Blank**

One trip blank (GWQTB) sample was prepared and analysed by the primary laboratory for BTEX. Analytical results for this sample were all below the corresponding laboratory LOR, indicating that ideal sample transport and handling conditions were achieved (i.e. there was no cross-contamination during sample transport and handling).

### **I3.1.4 Trip Spike**

One trip spike (GWQTS) sample was prepared and analysed by the primary laboratory for BTEX. Analyte recoveries for this sample were 97-99%, which complied with the DQI. It was therefore concluded that satisfactory sample transport and handling conditions were achieved (i.e. there was negligible loss of volatiles, and by default semi-volatiles, during sample transport and handling).

### **I3.1.5 Rinsate**

One rinsate sample GWQR-1 was submitted to the primary laboratory (SGS) for analysis of Metals/TRHs/BTEX. All results were reported below laboratory LOR; with exception of toluene (0.9 µg/L). As toluene concentrations was not detected in primary sample, it is likely that toluene concentrations are from plastic bottle of rinsate water, and therefore, decontamination procedures performed during the field works had been effective.

## **I.4 Assessment of Field QA/QC Data**

Based on the laboratory QA/QC results EI considers that although a small number of discrepancies were identified, which in most cases could be attributed to the non-homogenous nature of the submitted samples, the data generally confirms that the analytical results for the various phases of laboratory testing were valid and useable for interpretation purposes

The sampling methods (including sample preservation, transport and decontamination procedures) and laboratory methods followed during this investigation works were mostly consistent with EI protocols and meeting the DQOs for this project. Some discrepancies from the DQOs were reported however they were considered to not be detrimental to the validity of collected data. It is therefore considered that the data is sufficiently precise and accurate and that the results can be relied upon for interpretation.

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## Appendix J – Registered Groundwater Bore Maps

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