Petrolink
TOTAL FUEL SYSTEMS

Petrolink Engineering Pty Ltd
31-33 Jack Williams Drive, Penrith NSW 2750
ABN 96 155 909 498
Call 1300 738 075

Petro-Chemical Engineers - Fuel and Chemical System Design, Fabrication and Installation, Decommissioning and Site Environmental Remediation, Dangerous Goods Consultants

Att:- Frank Nicolas

14/3/2019

Re:- 1 – 23 Lenore Drive , Erskine Park, NSW – Soil Investigation , Round 2.

Dear Sir,
Following our meeting at Penrith Council it was proposed to carry out additional soil sampling on the above land to determine if any contamination existed as a result of imported fill.
As you are and Council were aware an initial investigation had been carried out in conjunction with GeoTechnique when drilling and sampling for geotechnical purposes. The results from samples taken at that time showed there was no contamination in those areas sampled.
Sampling was carried out in accordance with EPA Guidelines for Consultants Reporting on Contaminated Land.

Subsequently we have carried out a second round of drilling, sampling and analysis to overlay the initial areas in alternate positions.

The two sets of NATA Lab results are attached along with the Sampling areas site map.

The results from 18 samples show no contamination of concern.

The results from samples taken at bore hole BH10a and BH10b are above threshold levels for Polycyclic Aromatic Hydrocarbons (PAH). The levels are not of major concern and are not representative of any problems across the site. It appears to be a localised "hot spot" and could be as a result of earthmoving or trucking activity on the site. It is in the imported fill and not in the natural land.

Our recommendation is that the area be cordoned off with barricade tapes, we will carry out some additional tests to delineate the extent and that area of imported fill can be removed for legal disposal during or prior to other earthworks that will be carried out on the site during the development. A final Validation Report will be submitted when that activity takes place.

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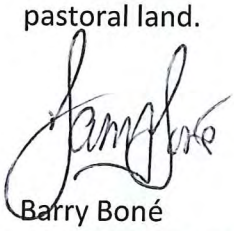
Also, as requested by Council, we confirm that the subject land has had no other uses apart from the home of Mr Nicholas's family of some 40 years. Prior to that the land was vacant pastoral land.



Barry Boné
Accredited Dangerous Goods Consultant
Qualified Hazardous Areas Specialist.

GEOTECHNIQUE
PTY LTD
ABN 64 002 841 063

Job No: 14443/1
Our Ref: 14443/1-L1
15 March 2019

Petrolink Engineering Pty Ltd
31-33 Jack Williams Drive
PENRITH NSW 2750
Email: barry@petrolink.com.au

Attention: Mr B Bone

Dear Sir

re: **Proposed Commercial Development**
1-23 Lanore Drive, Erskine Park

As requested we have assessed Polycyclic Aromatic Hydrocarbons (PAH) test results of two soil samples BH10A and BH10B, as collected and organised testing by the client Petrolink Engineering Pty Ltd.

For the aid the assessment, the client provides us hard copies of the followings:

- Drawing No Q6223-001 – Soil Sample Location Plan, prepared by Petrolink Engineering Pty Ltd
- Soil description of samples BH10A and BH10B, prepared by Petrolink Engineering Pty Ltd
- Eurofins Lab Certificate of Analysis- 641827-S dated 20 February 2019

Investigation levels and screening levels developed in the NEPM 2013 were used in this assessment, as follows:

- Risk-based Health Investigation Levels (HIL) for a broad range of metals and organic substances. The HIL are applicable for assessing human health risk via all relevant pathways of exposure. The HIL as listed in Table 1A (1) of Schedule B1 "*Guideline on Investigation Levels for Soil and Groundwater*" are provided for different land uses.

  The site is proposed for commercial development and as such the analytical results for this assessment are assessed against the available HIL for *commercial / industrial* (HIL D).

- Health Screening Level (HSL) for Naphthalene is applicable for assessing human health risk via inhalation and direct contact pathways. The HSL depend on specific soil physicochemical properties, land use scenarios and the characteristics of building structures. The HSL listed in Table 1A(3) of Schedule B1 "*Guideline on Investigation Levels for Soil and Groundwater*" apply to different soil types and depths below surface to >4 m.

  For this assessment, the analytical results are assessed against the available HSL for *commercial / industrial* (HSL D) for clay to depth of 0m to <1m.

- Ecological Screening Levelss (ESL) for Benzo(a)Pyrene is applicable for assessing the risk to terrestrial ecosystems. ESL listed in Table 1B(6) of Schedule B1 "*Guideline on Investigation Levels for Soil and Groundwater*" broadly apply to coarse and fine-grained soils and various land uses and are generally applicable to the top 2m of soil.

  The analytical results are assessed against the available ESL for *commercial / industrial* for fine-grained soil (clay).

- Ecological Investigation Levels (EIL), a specific type of Soil Quality Guidelines (SQG) for selected analytes, is applicable for assessing the risk to terrestrial ecosystems. For Naphthalene, generic EIL is adopted, for *commercial / industrial* land use for fresh contaminant.

For discrete soil samples, the individual concentrations of analytes were assessed against the HIL D / HSL D / ESL / EIL.

Reference may be made to the attached actual laboratory analytical reports from Eurofins. The PAH test results for two fill samples BH10A and BH10B are also presented in Table A below:

TABLE A
POLYCYCLIC AROMATIC HYDROCARBONS (PAH) TEST RESULTS
DISCRETE SAMPLES
(Ref No: 14443/1)

							NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)				
			PAH (mg/kg)				Health-based Investigation Levels (HIL) D[a] Commercial / Industrial D		Health Screening Level (HSL) D - Commercial / Industrial	Generic Ecological Investigation Level (EIL) - Commercial and industrial	Ecological Screening Level (ESL) - Commercial and industrial
Sample Location	Depth (m)	Soil type	BaP TEQ	TOTAL PAHs	NAPHTHALENE	BENZO(a)PYRENE (BaP)	BaP TEQ	TOTAL PAHs	NAPHTHALENE	NAPHTHALENE	BENZO(a)PYRENE (BaP)
BH10A	0.1	Clay	1.2	<0.5	<0.5	<0.5	40	4000	NL	370	1.4
BH10B	0.4	Clay	7.5	97.6	0.7	**4.8**	40	4000	NL	370	1.4
Limit of Reporting (LOR)			0.3	0.8	0.1	0.1					

Notes: a: Commercial / industrial includes premises such as shops, offices, factories and industrial sites.

NL: Not Limiting

As shown in the above Table A, concentrations of Benzo(a)pyrene, Benzo(a)pyrene TEQ, Naphthalene and Total PAH were below the relevant HIL D or ESL or HSL D or EIL adopted for sample BH10A and BH10B, with the exception of highlighted concentration of Benzo(a)pyrene of sample BH10B. The highlighted Benzo(a)pyrene concentration (4.8mg/kg) exceeded the relevant ESL level, which presents a risk to terrestrial ecosystems.

If you have any questions, please do not hesitate to contact the undersigned.

Yours faithfully
GEOTECHNIQUE PTY LTD

ANWAR BARBHUYIA
Associate
B.E (Civil), MEngSc (Enviro), MIEAust

Encl: Drawing No Q6223-001 – Soil Sample Location Plan
Soil description of samples BH10A and BH10B
Eurofins Lab Certificate of Analysis- 641827-S

LEGEND

Test Pit

GEOTECHNIQUE® PTY LTD

PO Box 880
Penrith NSW 2750
Tel: 02 4722 2700
Fax: 02 4722 2777
e-mail:info@geotech.com.au
www.geotech.com.au

NOTES

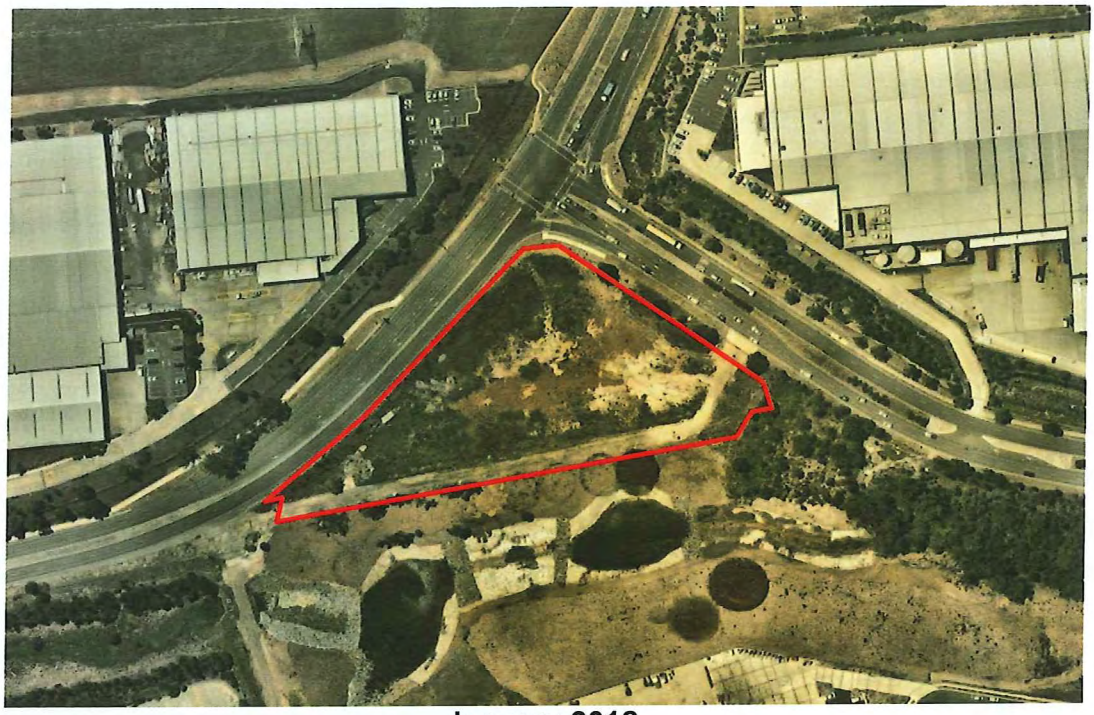
1. Site features are indicative and are not to scale.
2. This drawing has been produced using a base plan provided by others to which additional information e.g test pits, borehole locations or notes have been added. Some or all of the plan may not be relevant at the time of producing this drawing

Petrolink Engineering Pty Ltd
Proposed Industrial Development
Lot 1 DP1071114 & Lot 55 DP1170183
1-23 Lenore Drive & Erskine Park Road, Erskine Park

Test Pit Locations

Drawing No: 14213/1-AA1
Job No: 14213/1
Drawn By: MH
Date: 28 March 2018
Checked By: AI

File No: 14213-1
Layers: 0, AA1



January 2018
Imagery ©2018 NearMap.com

November 2009
Imagery ©2018 NearMap.com

2002

1982

1970

1961

GEOTECHNIQUE PTY LTD

Project	**Proposed Industrial Development**	**Job No**	**14213/1**
Location	**Lot 1 in DP1071114 & Lot 55 in DP1170183**	**Refer to Drawing No**	
	1-23 Lenore Drive & Erskine Park Road Erskine Park	**Logged & Sampled by**	**KS**

TABLE 1

Test pit	Depth (m)	Sample Depth (m)	Date	Time	Material Description	Remarks*
TP1	0-0.2		16/03/2018		TOPSOIL: Silty Clay, medium plasticity, brown, traces of gravel, M<PL, firm	
	0.2-2.2	(DSP) 0.2-0.4			FILL: Clay, high plasticity, red mottled grey, traces of gravel and root fibres, M<PL, well compacted	
	2.2-3.0				FILL: Silty Clay, medium to high plasticity, grey, M=PL, well compacted	
TP2	0-0.2		16/03/2018		TOPSOIL: Sandy Silt, low plasticity, brown	
	0.2-1.85	(U_{50}) 0.5-0.7			FILL: Clay, high plasticity, red mottled grey, traces of gravel, M<PL, well compacted	
		(DSP) 1.0-1.2				
	1.85-3.0				FILL: Gravelly Clay, medium to high plasticity, brown/yellow, traces of ironstone, M=PL, well compacted	
TP3	0-0.2		16/03/2018		TOPSOIL: Sandy Silt, low plasticity, brown	
	0.2-1.4				FILL: Clay, high plasticity, red mottled grey, traces of ironstone, M<PL, well compacted	
	1.4-2.1	(DSP) 2.0-2.2			FILL: Silty Clay, medium plasticity, grey M=PL, well compacted	Varying in colour from grey/brown/black
	2.1-2.3				SANDSTONE/ SILTSTONE, brown/red, iron stained	
TP4	0-0.2		16/03/2018		TOPSOIL: Silty clay, medium plasticity, brown, trace of root fibre, M<PL	
	0.2-0.7	(DSP) 0.5-0.7			FILL: Clay, medium plasticity, brown, M<PL, traces of root fibres and ironstone, well compacted	
	0.7-1.8	(U_{50}) 0.7-0.9			(CI) CLAY, medium plasticity, grey, M<PL, VSt	
		(CBR) 0.7-0.9				
	1.8-2.1				(CH) Shaley CLAY, high plasticity, grey, M<PL, VSt	
	2.1-2.3				SHALE, grey, extremely weathered, very low strength, ironstone interbedded	

NS = No Sample
*Odour (O), Discolouration (D), Petroleum Hydrocarbon Staining (PHS), Asbestos Containing Material (ACM), Ash Material (ASHM), Demolition Waste (DW), Groundwater (GW), Perched Water (PW) PID reading etc.

GEOTECHNIQUE PTY LTD

Project	**Proposed Industrial Development**	**Job No**	**14213/1**
Location	**Lot 1 in DP1071114 & Lot 55 in DP1170183**	**Refer to Drawing No**	
	1-23 Lenore Drive & Erskine Park Road Erskine Park	**Logged & Sampled by**	**KS**

TABLE 1

Test pit	Depth (m)	Sample Depth (m)	Date	Time	Material Description	Remarks*
TP5	0-0.2		16/03/2018		TOPSOIL: Silty Clay, medium plasticity, red/brown, traces of root fibres	
	0.2-0.9				FILL: Clay, high plasticity, red, traces of root fibres	
	0.9-2.5	(DSP) 1.5-1.7			FILL: Silty Clay, medium plasticity, brown/grey, alluvium inclusions, traces of ironstone, M<PL, well compacted	
	2.5-3.0				(CH) Shaley CLAY, high plasticity ,grey, M<PL, VSt	
TP6	0-0.2		16/03/2018		TOPSOIL: Silty Clay, medium plasticity, red/brown, traces of root fibres, firm	
	0.2-0.8				FILL: Clay, high plasticity, red, traces of root fibres, M<PL, well compacted	
	0.8-3.0	(DSP) 2.2-2.4			FILL: Silty Clay, medium plasticity, grey, traces of ironstone, M<PL, well compacted	
TP7	0-0.2		16/03/2018		TOPSOIL: Silty Clay, medium plasticity, brown, firm	
	0.2-1.1	(DSP) 0.7-0.9			FILL: Clay, high plasticity, red, traces of root fibres, M<PL, well compacted	
	1.1-3.0				FILL: Silty Clay, medium plasticity, grey, traces of root fibres and ironstone, M<PL, well compacted	
TP8	0-1.4		16/03/2018		FILL: Silty Clay, medium plasticity, brown, inclusion of gravel and root fibres, M<PL, well compacted	
	1.4-3.0	(DSP) 1.6-1.8			(CH) CLAY, high plasticity, yellow then red, M<PL, VSt	
TP9	0-0.8		16/03/2018		FILL: Silty Clay, medium plasticity, brown, gravel, M<PL, well compacted	
	0.8-1.3	(CBR) 1.0-1.2			FILL: Clay, high plasticity, red, M<PL, well compacted	
	1.3-1.6				FILL: Clayey Silt, medium plasticity, brown, M<PL, well compacted	
	1.6-3.0	(DSP) 2.6-2.8			FILL: Silty Clay, medium to high plasticity, red mottled grey, M<PL, well compacted	

NS = No Sample
*Odour (O), Discolouration (D), Petroleum Hydrocarbon Staining (PHS), Asbestos Containing Material (ACM), Ash Material (ASHM), Demolition Waste (DW), Groundwater (GW), Perched Water (PW) PID reading etc.

GEOTECHNIQUE PTY LTD

Project	**Proposed Industrial Development**	**Job No**	**14213/1**
Location	**Lot 1 in DP1071114 & Lot 55 in DP1170183**	**Refer to Drawing No**	
	1-23 Lenore Drive & Erskine Park Road Erskine Park	**Logged & Sampled by**	**KS**

TABLE 1

Test pit	Depth (m)	Sample Depth (m)	Date	Time	Material Description	Remarks*
TP10	0-0.2	(DSP) 0-0.2	16/03/2018		TOPSOIL: Silty Clay, medium plasticity, brown, traces of root fibres and gravel	
	0.2-1.8	(U_{50}) 1.0-1.2			FILL: Silty Clay, medium plasticity, brown, traces of root fibres, gravel and plastic, M<PL, well compacted	
	1.8-3.0				FILL: Clay, high plasticity, red mottled grey, M<PL, well compacted	
TP11	0-0.2		16/03/2018		TOPSOIL: Silty Clay, medium plasticity, red, trace of root fibres	
	0.2-2.2	(DSP) 1.0-1.2)			FILL: Clay, high plasticity, brown/yellow, trace of root fibres, M<PL, well compacted	
	2.2-3.0				(CH) CLAY, high plasticity ,grey, M<PL, stiff to very stiff	
TP12	0-0.2		16/03/2018		TOPSOIL: Silty Clay, medium plasticity, brown, trace of roots	
	0.2-1.65				(CH) CLAY, high plasticity, yellow/grey, M<PL, very stiff	
	1.65-2.0	(DSP) 1.8-2.0			(CH) Shaley CLAY ,high plasticity, grey, highly weathered, M<PL, hard	
	2.0-2.2				SHALE, grey, extremely weathered. Very low strength	
	2.2				Refusal	

NS = No Sample
*Odour (O), Discolouration (D), Petroleum Hydrocarbon Staining (PHS), Asbestos Containing Material (ACM), Ash Material (ASHM), Demolition Waste (DW), Groundwater (GW), Perched Water (PW) PID reading etc.

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The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Petrolink Engineering P/L
22 Peachtree Rd
Penrith
NSW 2750

Attention: **- cc SRAs/Results Craig Boné**

Report **589990-S**
Project name 1-28 ERSKINE PARK ROAD ERSKINE PARK
Project ID 11839
Received Date Mar 19, 2018

Client Sample ID			TP1-1.5M	TP1-3M	TP2-1.5M	TP2-3M
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Ma22029	S18-Ma22030	S18-Ma22031	S18-Ma22032
Date Sampled			Mar 16, 2018	Mar 16, 2018	Mar 16, 2018	Mar 16, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	91	91	77	80
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TP1-1.5M Soil S18-Ma22029 Mar 16, 2018	TP1-3M Soil S18-Ma22030 Mar 16, 2018	TP2-1.5M Soil S18-Ma22031 Mar 16, 2018	TP2-3M Soil S18-Ma22032 Mar 16, 2018
Polycyclic Aromatic Hydrocarbons						
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	99	100	105	96
p-Terphenyl-d14 (surr.)	1	%	97	100	107	98
Heavy Metals						
Lead	5	mg/kg	26	44	35	14
% Moisture	1	%	12	13	17	12

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TP3-1.5M Soil S18-Ma22033 Mar 16, 2018	TP3-2.3M Soil S18-Ma22034 Mar 16, 2018	TP4-1.5M Soil S18-Ma22035 Mar 16, 2018	TP4-2.3M Soil S18-Ma22036 Mar 16, 2018
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	76	57	70	64
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			TP3-1.5M	TP3-2.3M	TP4-1.5M	TP4-2.3M
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Ma22033	S18-Ma22034	S18-Ma22035	S18-Ma22036
Date Sampled			Mar 16, 2018	Mar 16, 2018	Mar 16, 2018	Mar 16, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	99	99	102	107
p-Terphenyl-d14 (surr.)	1	%	101	102	106	113
Heavy Metals						
Lead	5	mg/kg	16	16	27	20
% Moisture	1	%	13	16	13	13

Client Sample ID			TP5-1.5M	TP5-3M	TP6-1.5M	TP6-3M
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Ma22037	S18-Ma22038	S18-Ma22039	S18-Ma22040
Date Sampled			Mar 16, 2018	Mar 16, 2018	Mar 16, 2018	Mar 16, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	69	75	79	76
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TP5-1.5M Soil S18-Ma22037 Mar 16, 2018	TP5-3M Soil S18-Ma22038 Mar 16, 2018	TP6-1.5M Soil S18-Ma22039 Mar 16, 2018	TP6-3M Soil S18-Ma22040 Mar 16, 2018
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	95	100	99	101
p-Terphenyl-d14 (surr.)	1	%	99	106	105	108
Heavy Metals						
Lead	5	mg/kg	17	12	16	15
% Moisture	1	%	8.0	13	11	7.6

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TP7-1.5M Soil S18-Ma22041 Mar 16, 2018	TP7-3M Soil S18-Ma22042 Mar 16, 2018	TP8-1.5M Soil S18-Ma22043 Mar 16, 2018	TP8-3M Soil S18-Ma22044 Mar 16, 2018
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	77	75	78	75

Client Sample ID			TP7-1.5M	TP7-3M	TP8-1.5M	TP8-3M
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Ma22041	S18-Ma22042	S18-Ma22043	S18-Ma22044
Date Sampled			Mar 16, 2018	Mar 16, 2018	Mar 16, 2018	Mar 16, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	99	94	96	104
p-Terphenyl-d14 (surr.)	1	%	105	99	102	112
Heavy Metals						
Lead	5	mg/kg	37	48	24	23
% Moisture	1	%	14	11	14	15

Client Sample ID			TP9-1.5M	TP9-3M	TP10-1.5M	TP10-3M
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Ma22045	S18-Ma22046	S18-Ma22047	S18-Ma22048
Date Sampled			Mar 16, 2018	Mar 16, 2018	Mar 16, 2018	Mar 16, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50

eurofins | mgt

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TP9-1.5M Soil S18-Ma22045 Mar 16, 2018	TP9-3M Soil S18-Ma22046 Mar 16, 2018	TP10-1.5M Soil S18-Ma22047 Mar 16, 2018	TP10-3M Soil S18-Ma22048 Mar 16, 2018
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	78	75	73	77
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	99	103	98	92
p-Terphenyl-d14 (surr.)	1	%	105	114	103	106
Heavy Metals						
Lead	5	mg/kg	16	35	16	6.0
% Moisture	1	%	14	18	16	18

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Client Sample ID			TP11-1.5M	TP11-3M	TP12-1.5M	TP12-2M
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Ma22049	S18-Ma22050	S18-Ma22051	S18-Ma22052
Date Sampled			Mar 16, 2018	Mar 16, 2018	Mar 16, 2018	Mar 16, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	97	82	99	97
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	101	102	96	107
p-Terphenyl-d14 (surr.)	1	%	103	108	103	112
Heavy Metals						
Lead	5	mg/kg	17	11	19	19
% Moisture	1	%	15	19	10	9.4

Client Sample ID			STOCK
Sample Matrix			Soil
Eurofins | mgt Sample No.			S18-Ma22053
Date Sampled			Mar 16, 2018
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-36 (Total)	50	mg/kg	< 50
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	86
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5
Total PAH*	0.5	mg/kg	< 0.5
2-Fluorobiphenyl (surr.)	1	%	98
p-Terphenyl-d14 (surr.)	1	%	98
Heavy Metals			
Lead	5	mg/kg	10
% Moisture	1	%	4.0

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Eurofins | mgt Suite B4			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Mar 20, 2018	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	Mar 20, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Mar 20, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Mar 20, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	Mar 20, 2018	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soils by GCMS			
Heavy Metals	Sydney	Mar 20, 2018	180 Day
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
% Moisture	Sydney	Mar 19, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

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NATA # 1261 Site # 18217

Brisbane
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Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
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Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Petrolink Engineering P/L
Address: 22 Peachtree Rd
Penrith
NSW 2750

Project Name: 1-28 ERSKINE PARK ROAD ERSKINE PARK
Project ID: 11839

Order No.: 5505
Report #: 589990
Phone: 02 4722 9775
Fax:

Received: Mar 19, 2018 6:37 PM
Due: Mar 22, 2018
Priority: 2 Day
Contact Name: - cc SRAs/Results Craig Boné

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Lead	Moisture Set	Eurofins | mgt Suite B4
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
External Laboratory								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID			
1	TP1-1.5M	Mar 16, 2018	10:18AM	Soil	S18-Ma22029	X	X	X
2	TP1-3M	Mar 16, 2018	10:25AM	Soil	S18-Ma22030	X	X	X
3	TP2-1.5M	Mar 16, 2018	10:40AM	Soil	S18-Ma22031	X	X	X
4	TP2-3M	Mar 16, 2018	10:46AM	Soil	S18-Ma22032	X	X	X
5	TP3-1.5M	Mar 16, 2018	11:05AM	Soil	S18-Ma22033	X	X	X
6	TP3-2.3M	Mar 16, 2018	11:10AM	Soil	S18-Ma22034	X	X	X
7	TP4-1.5M	Mar 16, 2018	11:25AM	Soil	S18-Ma22035	X	X	X
8	TP4-2.3M	Mar 16, 2018	11:35AM	Soil	S18-Ma22036	X	X	X
9	TP5-1.5M	Mar 16, 2018	11:55AM	Soil	S18-Ma22037	X	X	X

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Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
10	TP5-3M	Mar 16, 2018	12:15PM	Soil	S18-Ma22038	X	X	X
11	TP6-1.5M	Mar 16, 2018	12:30PM	Soil	S18-Ma22039	X	X	X
12	TP6-3M	Mar 16, 2018	12:40PM	Soil	S18-Ma22040	X	X	X
13	TP7-1.5M	Mar 16, 2018	1:00PM	Soil	S18-Ma22041	X	X	X
14	TP7-3M	Mar 16, 2018	1:05PM	Soil	S18-Ma22042	X	X	X
15	TP8-1.5M	Mar 16, 2018	1:20PM	Soil	S18-Ma22043	X	X	X
16	TP8-3M	Mar 16, 2018	1:30PM	Soil	S18-Ma22044	X	X	X
17	TP9-1.5M	Mar 16, 2018	1:40PM	Soil	S18-Ma22045	X	X	X
18	TP9-3M	Mar 16, 2018	1:53PM	Soil	S18-Ma22046	X	X	X
19	TP10-1.5M	Mar 16, 2018	2:05PM	Soil	S18-Ma22047	X	X	X
20	TP10-3M	Mar 16, 2018	2:15PM	Soil	S18-Ma22048	X	X	X
21	TP11-1.5M	Mar 16, 2018	2:30PM	Soil	S18-Ma22049	X	X	X

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Sample Detail						Lead	Moisture Set	Eurofins | mgt Suite B4
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
22	TP11-3M	Mar 16, 2018	2:34PM	Soil	S18-Ma22050	X	X	X
23	TP12-1.5M	Mar 16, 2018	2:46PM	Soil	S18-Ma22051	X	X	X
24	TP12-2M	Mar 16, 2018	3:00PM	Soil	S18-Ma22052	X	X	X
25	STOCK	Mar 16, 2018	12:41PM	Soil	S18-Ma22053	X	X	X
Test Counts						25	25	25

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota 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. 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

ug/L: micrograms per litre

ppb: Parts per billion

org/100mL: Organisms per 100 millilitres

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

mg/L: milligrams per litre

ppm: Parts per million

%: Percentage

NTU: Nephelometric Turbidity Units

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

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.

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Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Lead	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	74			70-130	Pass	
TRH C10-C14	%	88			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	78			70-130	Pass	
Toluene	%	80			70-130	Pass	
Ethylbenzene	%	78			70-130	Pass	
m&p-Xylenes	%	80			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
o-Xylene	%	77			70-130	Pass	
Xylenes - Total	%	79			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	75			70-130	Pass	
TRH C6-C10	%	79			70-130	Pass	
TRH >C10-C16	%	92			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	85			70-130	Pass	
Acenaphthylene	%	86			70-130	Pass	
Anthracene	%	91			70-130	Pass	
Benz(a)anthracene	%	78			70-130	Pass	
Benzo(a)pyrene	%	88			70-130	Pass	
Benzo(b&j)fluoranthene	%	84			70-130	Pass	
Benzo(g.h.i)perylene	%	94			70-130	Pass	
Benzo(k)fluoranthene	%	89			70-130	Pass	
Chrysene	%	91			70-130	Pass	
Dibenz(a.h)anthracene	%	89			70-130	Pass	
Fluoranthene	%	85			70-130	Pass	
Fluorene	%	88			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	89			70-130	Pass	
Naphthalene	%	87			70-130	Pass	
Phenanthrene	%	90			70-130	Pass	
Pyrene	%	85			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Lead	%	99			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Lead	S18-Ma22030	CP	%	83			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S18-Ma22032	CP	%	71			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S18-Ma22032	CP	%	80			70-130	Pass	
Toluene	S18-Ma22032	CP	%	79			70-130	Pass	
Ethylbenzene	S18-Ma22032	CP	%	75			70-130	Pass	
m&p-Xylenes	S18-Ma22032	CP	%	76			70-130	Pass	
o-Xylene	S18-Ma22032	CP	%	75			70-130	Pass	
Xylenes - Total	S18-Ma22032	CP	%	75			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S18-Ma22032	CP	%	73			70-130	Pass	
TRH C6-C10	S18-Ma22032	CP	%	72			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	S18-Ma22035	CP	%	85			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S18-Ma22035	CP	%	88			70-130	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S18-Ma22035	CP	%	78			70-130	Pass	
Acenaphthylene	S18-Ma22035	CP	%	81			70-130	Pass	
Anthracene	S18-Ma22035	CP	%	85			70-130	Pass	
Benz(a)anthracene	S18-Ma22035	CP	%	73			70-130	Pass	
Benzo(a)pyrene	S18-Ma22035	CP	%	83			70-130	Pass	
Benzo(b&j)fluoranthene	S18-Ma22035	CP	%	82			70-130	Pass	
Benzo(g.h.i)perylene	S18-Ma22035	CP	%	86			70-130	Pass	
Benzo(k)fluoranthene	S18-Ma22035	CP	%	79			70-130	Pass	
Chrysene	S18-Ma22035	CP	%	86			70-130	Pass	
Dibenz(a.h)anthracene	S18-Ma22035	CP	%	83			70-130	Pass	
Fluoranthene	S18-Ma22035	CP	%	80			70-130	Pass	
Fluorene	S18-Ma22035	CP	%	83			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S18-Ma22035	CP	%	82			70-130	Pass	
Naphthalene	S18-Ma22035	CP	%	83			70-130	Pass	
Phenanthrene	S18-Ma22035	CP	%	84			70-130	Pass	
Pyrene	S18-Ma22035	CP	%	82			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S18-Ma22042	CP	%	73			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S18-Ma22042	CP	%	78			70-130	Pass	
Toluene	S18-Ma22042	CP	%	81			70-130	Pass	
Ethylbenzene	S18-Ma22042	CP	%	77			70-130	Pass	
m&p-Xylenes	S18-Ma22042	CP	%	81			70-130	Pass	
o-Xylene	S18-Ma22042	CP	%	81			70-130	Pass	
Xylenes - Total	S18-Ma22042	CP	%	81			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S18-Ma22042	CP	%	74			70-130	Pass	
TRH C6-C10	S18-Ma22042	CP	%	77			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	S18-Ma22045	CP	%	88			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S18-Ma22045	CP	%	90			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S18-Ma22045	CP	%	86			70-130	Pass	
Acenaphthylene	S18-Ma22045	CP	%	84			70-130	Pass	
Anthracene	S18-Ma22045	CP	%	81			70-130	Pass	
Benz(a)anthracene	S18-Ma22045	CP	%	86			70-130	Pass	
Benzo(a)pyrene	S18-Ma22045	CP	%	89			70-130	Pass	
Benzo(b&j)fluoranthene	S18-Ma22045	CP	%	87			70-130	Pass	
Benzo(g.h.i)perylene	S18-Ma22045	CP	%	85			70-130	Pass	
Benzo(k)fluoranthene	S18-Ma22045	CP	%	86			70-130	Pass	
Chrysene	S18-Ma22045	CP	%	83			70-130	Pass	
Dibenz(a.h)anthracene	S18-Ma22045	CP	%	95			70-130	Pass	
Fluoranthene	S18-Ma22045	CP	%	75			70-130	Pass	
Fluorene	S18-Ma22045	CP	%	82			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S18-Ma22045	CP	%	96			70-130	Pass	
Naphthalene	S18-Ma22045	CP	%	81			70-130	Pass	

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Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Phenanthrene	S18-Ma22045	CP	%	78			70-130	Pass	
Pyrene	S18-Ma22045	CP	%	81			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Lead	S18-Ma22050	CP	%	88			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S18-Ma22052	CP	%	104			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S18-Ma22052	CP	%	129			70-130	Pass	
Toluene	S18-Ma22052	CP	%	113			70-130	Pass	
Ethylbenzene	S18-Ma22052	CP	%	110			70-130	Pass	
m&p-Xylenes	S18-Ma22052	CP	%	112			70-130	Pass	
o-Xylene	S18-Ma22052	CP	%	111			70-130	Pass	
Xylenes - Total	S18-Ma22052	CP	%	112			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S18-Ma22052	CP	%	82			70-130	Pass	
TRH C6-C10	S18-Ma22052	CP	%	101			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	S18-Ma23301	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S18-Ma23301	NCP	mg/kg	60	< 50	58	30%	Fail	Q15
TRH C29-C36	S18-Ma23301	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S18-Ma23301	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S18-Ma23301	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S18-Ma23301	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S18-Ma22031	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S18-Ma22031	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S18-Ma22031	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S18-Ma22031	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S18-Ma22031	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S18-Ma22031	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S18-Ma22031	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S18-Ma22031	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S18-Ma22031	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S18-Ma22034	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S18-Ma22034	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S18-Ma22034	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S18-Ma22034	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S18-Ma22034	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S18-Ma22034	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Benzo(g.h.i)perylene	S18-Ma22034	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	S18-Ma22034	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S18-Ma22034	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a.h)anthracene	S18-Ma22034	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S18-Ma22034	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	S18-Ma22034	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1.2.3-cd)pyrene	S18-Ma22034	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S18-Ma22034	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S18-Ma22034	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	S18-Ma22034	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	S18-Ma22041	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	S18-Ma22041	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	S18-Ma22041	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	S18-Ma22041	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	S18-Ma22041	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	S18-Ma22041	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total	S18-Ma22041	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S18-Ma22041	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	S18-Ma22041	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	S18-Ma22041	CP	%	14	13	7.0	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S18-Ma22044	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S18-Ma22044	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S18-Ma22044	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	S18-Ma22044	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	S18-Ma22044	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	S18-Ma22044	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(g.h.i)perylene	S18-Ma22044	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	S18-Ma22044	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S18-Ma22044	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a.h)anthracene	S18-Ma22044	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S18-Ma22044	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	S18-Ma22044	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1.2.3-cd)pyrene	S18-Ma22044	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S18-Ma22044	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S18-Ma22044	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	S18-Ma22044	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Lead	S18-Ma22049	CP	mg/kg	17	15	13	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	S18-Ma22051	CP	mg/kg	< 20	< 20	<1	30%	Pass

Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S18-Ma22051	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S18-Ma22051	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S18-Ma22051	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S18-Ma22051	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S18-Ma22051	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S18-Ma22051	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S18-Ma22051	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S18-Ma22051	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S18-Ma22051	CP	%	10	12	16	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

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

Authorised By

Andrew Black Analytical Services Manager

Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

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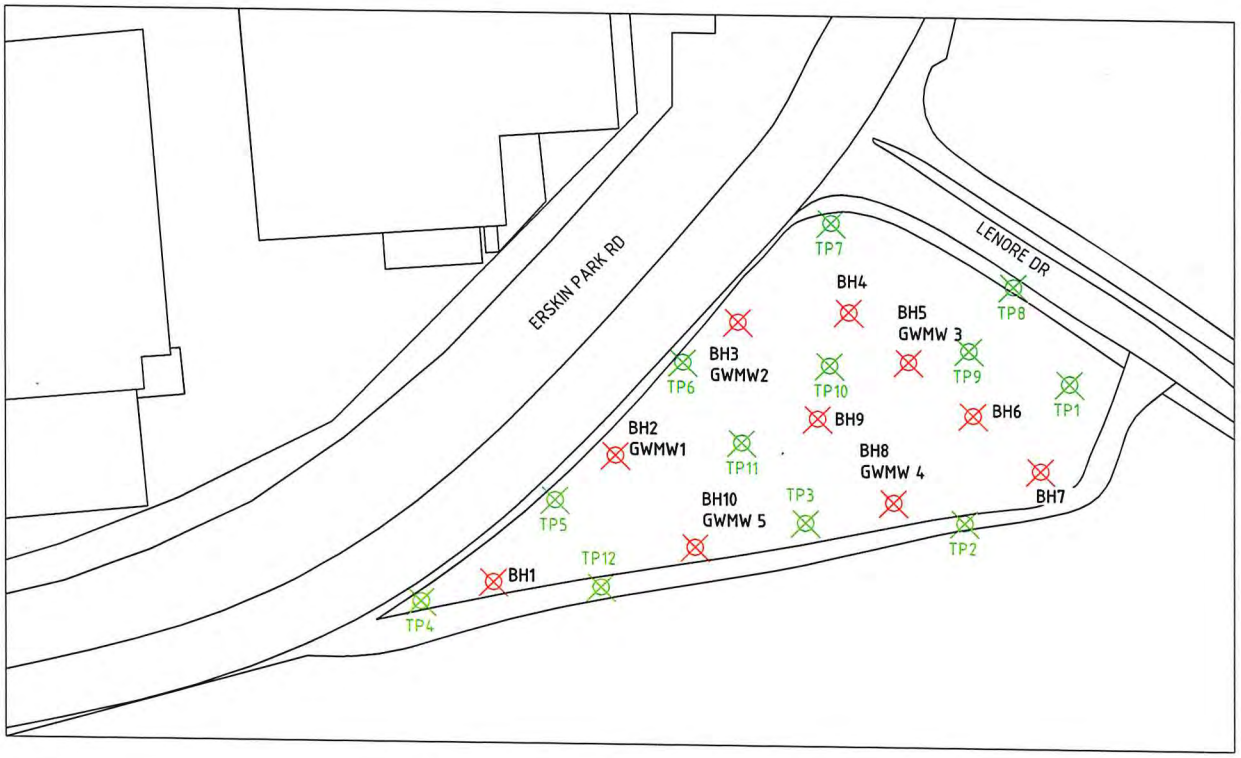
Round 2
Feb 20 2019

SOIL SAMPLE DATA	
BORE ID	**DEPTH OF SAMPLE (Mt)**
BH1A	0.1
BH1B	0.4
BH2A	0.1
BH2B	0.4
BH3A	0.1
BH3B	0.4
BH4A	0.1
BH4B	0.4
BH5A	0.1
BH5B	0.4
BH6A	0.1
BH6B	0.4
BH7A	0.1
BH7B	0.4
BH8A	0.1
BH8B	0.4
BH9A	0.1
BH9B	0.4
BH10A	0.1
BH10B	0.4



SOIL SAMPLE LOCATION PLAN
1-23 LENORE DR, ERSKINE PARK

LEGEND:
BH XX - BORE HOLE XX
GWMW XX - GROUND WATER MONITORING WELL XX

0 15 30 45 60 75m
1:1500

REV	REV. BY	DATE	DESCRIPTION
3	CP	15/03/19	PREVIOUS BORE LOCATIONS (TP XX) ADDED.
2	CP	20/02/19	BORE LOCATION MODIFIED
1	CP	08/02/19	INITIAL ISSUE

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Website: www.petrolink.com.au

DRN.	CP	DATE 08/02/19
CHK.	BB	DATE 08/02/19
APPV.	-	DATE -
SCALE	1:1500	

DIMENSIONS IN MILLIMETRES

DRAWING No. Q6223-001
CLIENT -
CONTRACT No. -

TITLE
FRANK NICOLAS C/O ARK EXPRESS
1-23 LANORE DR, ERSKINE PARK
SOIL SAMPLE ANALYSIS
SOIL SAMPLE LOCATION PLAN

REV 3
SIZE A3

eurofins | mgt

Certificate of Analysis

Petrolink Engineering P/L
Unit 4/31-33 Jack Williams Drive
Penrith
NSW 2750

NATA Accredited
Accreditation Number 1261
Site Number 1254

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: **Craig Boné**

Report **641827-S**
Project name 23 LENORE DRIVE ERSKINE PARK
Project ID 12217
Received Date Feb 20, 2019

Client Sample ID			BH1A	BH1B	BH2A	BH2B
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M19-Fe29017	M19-Fe29018	M19-Fe29019	M19-Fe29020
Date Sampled			Feb 18, 2019	Feb 18, 2019	Feb 18, 2019	Feb 18, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	75	89	81	85
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			BH1A	BH1B	BH2A	BH2B
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M19-Fe29017	M19-Fe29018	M19-Fe29019	M19-Fe29020
Date Sampled			Feb 18, 2019	Feb 18, 2019	Feb 18, 2019	Feb 18, 2019
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	71	75	66	71
p-Terphenyl-d14 (surr.)	1	%	53	56	70	74
Heavy Metals						
Arsenic	2	mg/kg	17	13	7.5	13
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	30	27	21	33
Copper	5	mg/kg	14	14	42	16
Lead	5	mg/kg	20	21	28	26
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	6.1	5.8	6.5
Zinc	5	mg/kg	30	52	35	40
% Moisture	1	%	9.8	8.5	8.1	9.1

Client Sample ID			BH3A	BH3B	BH4A	BH5A
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M19-Fe29021	M19-Fe29022	M19-Fe29023	M19-Fe29024
Date Sampled			Feb 18, 2019	Feb 18, 2019	Feb 18, 2019	Feb 18, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	86	83	88	88
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100

Client Sample ID			BH3A	BH3B	BH4A	BH5A
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M19-Fe29021	M19-Fe29022	M19-Fe29023	M19-Fe29024
Date Sampled			Feb 18, 2019	Feb 18, 2019	Feb 18, 2019	Feb 18, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	76	89	50	61
p-Terphenyl-d14 (surr.)	1	%	57	67	73	61
Heavy Metals						
Arsenic	2	mg/kg	12	12	11	7.2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	24	18	21	8.1
Copper	5	mg/kg	26	25	27	33
Lead	5	mg/kg	20	21	15	16
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	12	10.0	24	19
Zinc	5	mg/kg	56	68	65	99
% Moisture	1	%	8.0	10	4.4	8.0

Client Sample ID			BH5B	BH6A	BH6B	BH7A
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M19-Fe29025	M19-Fe29026	M19-Fe29027	M19-Fe29028
Date Sampled			Feb 18, 2019	Feb 18, 2019	Feb 18, 2019	Feb 18, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50

Client Sample ID			BH5B	BH6A	BH6B	BH7A
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M19-Fe29025	M19-Fe29026	M19-Fe29027	M19-Fe29028
Date Sampled			Feb 18, 2019	Feb 18, 2019	Feb 18, 2019	Feb 18, 2019
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	83	87	90	89
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	93	60	87	65
p-Terphenyl-d14 (surr.)	1	%	75	58	68	67
Heavy Metals						
Arsenic	2	mg/kg	6.9	10	7.1	8.9
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	7.9	18	17	19
Copper	5	mg/kg	33	16	28	27
Lead	5	mg/kg	14	23	20	36
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	17	8.5	18	11
Zinc	5	mg/kg	93	36	63	130
% Moisture	1	%	8.9	7.4	7.9	7.6

Client Sample ID			BH7B	BH8A	BH8B	BH9A
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M19-Fe29029	M19-Fe29030	M19-Fe29031	M19-Fe29032
Date Sampled			Feb 18, 2019	Feb 18, 2019	Feb 18, 2019	Feb 18, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	81	92	105	90
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	67	66	60	62
p-Terphenyl-d14 (surr.)	1	%	69	65	60	65

Client Sample ID			BH7B	BH8A	BH8B	BH9A
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M19-Fe29029	M19-Fe29030	M19-Fe29031	M19-Fe29032
Date Sampled			Feb 18, 2019	Feb 18, 2019	Feb 18, 2019	Feb 18, 2019
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	12	14	12	5.4
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	31	34	18	17
Copper	5	mg/kg	28	17	34	32
Lead	5	mg/kg	45	22	19	32
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	18	7.2	16	16
Zinc	5	mg/kg	180	35	96	97
% Moisture	1	%	5.3	9.4	9.1	9.2

Client Sample ID			BH9B	BH10A	BH10B
Sample Matrix			Soil	Soil	Soil
Eurofins | mgt Sample No.			M19-Fe29033	M19-Fe29034	M19-Fe29035
Date Sampled			Feb 18, 2019	Feb 18, 2019	Feb 18, 2019
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	20	mg/kg	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	210
TRH C29-C36	50	mg/kg	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	210
BTEX					
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	107	89	94
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	230
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	230
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	7.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	7.5
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	7.5
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	2.1
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	5.3
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	5.2
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	4.8

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	BH9B Soil M19-Fe29033 Feb 18, 2019	BH10A Soil M19-Fe29034 Feb 18, 2019	BH10B Soil M19-Fe29035 Feb 18, 2019
Polycyclic Aromatic Hydrocarbons					
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	3.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	2.4
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	4.0
Chrysene	0.5	mg/kg	< 0.5	< 0.5	4.8
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	1.0
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	21
Fluorene	0.5	mg/kg	< 0.5	< 0.5	2.3
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	3.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	0.7
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	20
Pyrene	0.5	mg/kg	< 0.5	< 0.5	17
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	97.6
2-Fluorobiphenyl (surr.)	1	%	68	53	61
p-Terphenyl-d14 (surr.)	1	%	73	58	73
Heavy Metals					
Arsenic	2	mg/kg	14	6.9	12
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	39	16	27
Copper	5	mg/kg	38	26	42
Lead	5	mg/kg	41	48	53
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	17	12	23
Zinc	5	mg/kg	83	98	120
% Moisture	1	%	9.9	8.1	9.0

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Eurofins | mgt Suite B7			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Feb 22, 2019	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Feb 22, 2019	14 Day
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Feb 22, 2019	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Feb 22, 2019	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Feb 22, 2019	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Melbourne	Feb 22, 2019	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Melbourne	Feb 22, 2019	14 Day
- Method: LTM-GEN-7080 Moisture			

eurofins | mgt

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Site # 23736

Company Name:	Petrolink Engineering P/L	**Order No.:**	6270	**Received:**	Feb 20, 2019 5:45 PM
Address:	Unit 4/31-33 Jack Williams Drive Penrith NSW 2750	**Report #:**	641827	**Due:**	Feb 28, 2019
		Phone:	02 4722 9775	**Priority:**	5 Day
		Fax:		**Contact Name:**	- cc SRAs/Results Craig Boné
Project Name:	23 LENORE DRIVE ERSKINE PARK				
Project ID:	12217				

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Moisture Set	Eurofins | mgt Suite B7
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	BH1A	Feb 18, 2019		Soil	M19-Fe29017	X	X
2	BH1B	Feb 18, 2019		Soil	M19-Fe29018	X	X
3	BH2A	Feb 18, 2019		Soil	M19-Fe29019	X	X
4	BH2B	Feb 18, 2019		Soil	M19-Fe29020	X	X
5	BH3A	Feb 18, 2019		Soil	M19-Fe29021	X	X
6	BH3B	Feb 18, 2019		Soil	M19-Fe29022	X	X
7	BH4A	Feb 18, 2019		Soil	M19-Fe29023	X	X
8	BH5A	Feb 18, 2019		Soil	M19-Fe29024	X	X
9	BH5B	Feb 18, 2019		Soil	M19-Fe29025	X	X

eurofins | mgt

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NATA # 1261
Site # 23736

Company Name:	Petrolink Engineering P/L	**Order No.:**	6270	**Received:**	Feb 20, 2019 5:45 PM
Address:	Unit 4/31-33 Jack Williams Drive Penrith NSW 2750	**Report #:**	641827	**Due:**	Feb 28, 2019
		Phone:	02 4722 9775	**Priority:**	5 Day
		Fax:		**Contact Name:**	- cc SRAs/Results Craig Boné
Project Name:	23 LENORE DRIVE ERSKINE PARK				
Project ID:	12217				

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Moisture Set	Eurofins | mgt Suite B7
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
10	BH6A	Feb 18, 2019		Soil	M19-Fe29026	X	X
11	BH6B	Feb 18, 2019		Soil	M19-Fe29027	X	X
12	BH7A	Feb 18, 2019		Soil	M19-Fe29028	X	X
13	BH7B	Feb 18, 2019		Soil	M19-Fe29029	X	X
14	BH8A	Feb 18, 2019		Soil	M19-Fe29030	X	X
15	BH8B	Feb 18, 2019		Soil	M19-Fe29031	X	X
16	BH9A	Feb 18, 2019		Soil	M19-Fe29032	X	X
17	BH9B	Feb 18, 2019		Soil	M19-Fe29033	X	X
18	BH10A	Feb 18, 2019		Soil	M19-Fe29034	X	X
19	BH10B	Feb 18, 2019		Soil	M19-Fe29035	X	X
Test Counts						19	19

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, April 2011 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. 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

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.2 2018
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.2 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.

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Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	115			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C10-C14	%	83			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	113			70-130	Pass	
Toluene	%	111			70-130	Pass	
Ethylbenzene	%	113			70-130	Pass	
m&p-Xylenes	%	100			70-130	Pass	
Xylenes - Total	%	105			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	102			70-130	Pass	
TRH C6-C10	%	112			70-130	Pass	
TRH >C10-C16	%	83			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	106			70-130	Pass	
Acenaphthylene	%	109			70-130	Pass	
Anthracene	%	117			70-130	Pass	
Benz(a)anthracene	%	98			70-130	Pass	
Benzo(a)pyrene	%	70			70-130	Pass	
Benzo(b&j)fluoranthene	%	84			70-130	Pass	
Benzo(g.h.i)perylene	%	83			70-130	Pass	
Benzo(k)fluoranthene	%	70			70-130	Pass	
Chrysene	%	80			70-130	Pass	
Dibenz(a.h)anthracene	%	94			70-130	Pass	
Fluoranthene	%	86			70-130	Pass	
Fluorene	%	115			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	86			70-130	Pass	
Naphthalene	%	82			70-130	Pass	
Phenanthrene	%	87			70-130	Pass	
Pyrene	%	86			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	111			80-120	Pass	
Cadmium	%	96			80-120	Pass	
Chromium	%	102			80-120	Pass	
Copper	%	101			80-120	Pass	
Lead	%	113			80-120	Pass	
Mercury	%	111			75-125	Pass	
Nickel	%	101			80-120	Pass	
Zinc	%	114			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M19-Fe31607	NCP	%	109			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M19-Fe31607	NCP	%	97			70-130	Pass	
Toluene	M19-Fe31607	NCP	%	101			70-130	Pass	
Ethylbenzene	M19-Fe31607	NCP	%	106			70-130	Pass	
m&p-Xylenes	M19-Fe31607	NCP	%	95			70-130	Pass	
o-Xylene	M19-Fe31607	NCP	%	109			70-130	Pass	
Xylenes - Total	M19-Fe31607	NCP	%	99			70-130	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M19-Fe31607	NCP	%	118			70-130	Pass	
TRH C6-C10	M19-Fe31607	NCP	%	109			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M19-Fe29017	CP	%	106			75-125	Pass	
Cadmium	M19-Fe29017	CP	%	98			75-125	Pass	
Chromium	M19-Fe29017	CP	%	87			75-125	Pass	
Copper	M19-Fe29017	CP	%	95			75-125	Pass	
Lead	M19-Fe29017	CP	%	107			75-125	Pass	
Mercury	M19-Fe29017	CP	%	106			70-130	Pass	
Nickel	M19-Fe29017	CP	%	94			75-125	Pass	
Zinc	M19-Fe29017	CP	%	110			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C16-C34	P19-Fe28568	NCP	%	0.0000000			70-130	Fail	
TRH >C34-C40	P19-Fe28568	NCP	%	0.0000000			70-130	Fail	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	M19-Fe29026	CP	%	113			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	M19-Fe29026	CP	%	111			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M19-Fe29027	CP	%	113			75-125	Pass	
Cadmium	M19-Fe29027	CP	%	112			75-125	Pass	
Chromium	M19-Fe29027	CP	%	116			75-125	Pass	
Copper	M19-Fe29027	CP	%	115			75-125	Pass	
Lead	M19-Fe29027	CP	%	115			75-125	Pass	
Mercury	M19-Fe29027	CP	%	106			70-130	Pass	
Nickel	M19-Fe29027	CP	%	113			75-125	Pass	
Zinc	M19-Fe29027	CP	%	122			75-125	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M19-Fe29029	CP	%	97			70-130	Pass	
Acenaphthylene	M19-Fe29029	CP	%	102			70-130	Pass	
Anthracene	M19-Fe29029	CP	%	95			70-130	Pass	
Benz(a)anthracene	M19-Fe29029	CP	%	104			70-130	Pass	
Benzo(a)pyrene	M19-Fe29029	CP	%	97			70-130	Pass	
Benzo(b&j)fluoranthene	M19-Fe29029	CP	%	93			70-130	Pass	
Benzo(g.h.i)perylene	M19-Fe29029	CP	%	80			70-130	Pass	
Benzo(k)fluoranthene	M19-Fe29029	CP	%	96			70-130	Pass	
Chrysene	M19-Fe29029	CP	%	106			70-130	Pass	
Dibenz(a.h)anthracene	M19-Fe29029	CP	%	93			70-130	Pass	
Fluoranthene	M19-Fe29029	CP	%	97			70-130	Pass	
Fluorene	M19-Fe29029	CP	%	80			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M19-Fe29029	CP	%	81			70-130	Pass	
Naphthalene	M19-Fe29029	CP	%	79			70-130	Pass	
Phenanthrene	M19-Fe29029	CP	%	88			70-130	Pass	
Pyrene	M19-Fe29029	CP	%	94			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M19-Fe29017	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M19-Fe29017	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M19-Fe29017	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M19-Fe29017	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M19-Fe29017	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M19-Fe29017	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M19-Fe29017	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M19-Fe29017	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M19-Fe29017	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M19-Fe29017	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M19-Fe29017	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M19-Fe29017	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M19-Fe29017	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M19-Fe29017	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M19-Fe29017	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M19-Fe29017	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M19-Fe29017	CP	mg/kg	17	17	1.0	30%	Pass	
Cadmium	M19-Fe29017	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M19-Fe29017	CP	mg/kg	30	31	3.0	30%	Pass	
Copper	M19-Fe29017	CP	mg/kg	14	14	4.0	30%	Pass	
Lead	M19-Fe29017	CP	mg/kg	20	20	1.0	30%	Pass	
Mercury	M19-Fe29017	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M19-Fe29017	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	M19-Fe29017	CP	mg/kg	30	31	2.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M19-Fe29437	NCP	%	15	15	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M19-Fe29023	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M19-Fe29023	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M19-Fe29023	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M19-Fe29023	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M19-Fe29023	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M19-Fe29023	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	M19-Fe29023	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M19-Fe29023	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M19-Fe29023	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	M19-Fe29025	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M19-Fe29025	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M19-Fe29025	CP	mg/kg	< 50	< 50	<1	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	M19-Fe29025	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M19-Fe29025	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	M19-Fe29025	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M19-Fe29026	CP	mg/kg	10	9.1	12	30%	Pass	
Cadmium	M19-Fe29026	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M19-Fe29026	CP	mg/kg	18	18	3.0	30%	Pass	
Copper	M19-Fe29026	CP	mg/kg	16	16	1.0	30%	Pass	
Lead	M19-Fe29026	CP	mg/kg	23	19	18	30%	Pass	
Mercury	M19-Fe29026	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M19-Fe29026	CP	mg/kg	8.5	8.5	<1	30%	Pass	
Zinc	M19-Fe29026	CP	mg/kg	36	42	14	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M19-Fe29027	CP	mg/kg	7.1	6.8	4.0	30%	Pass	
Cadmium	M19-Fe29027	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M19-Fe29027	CP	mg/kg	17	16	2.0	30%	Pass	
Copper	M19-Fe29027	CP	mg/kg	28	28	2.0	30%	Pass	
Lead	M19-Fe29027	CP	mg/kg	20	20	<1	30%	Pass	
Mercury	M19-Fe29027	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M19-Fe29027	CP	mg/kg	18	17	3.0	30%	Pass	
Zinc	M19-Fe29027	CP	mg/kg	63	63	1.0	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M19-Fe29028	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M19-Fe29028	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M19-Fe29028	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M19-Fe29028	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M19-Fe29028	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M19-Fe29028	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M19-Fe29028	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M19-Fe29028	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M19-Fe29028	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M19-Fe29028	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M19-Fe29028	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M19-Fe29028	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M19-Fe29028	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M19-Fe29028	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M19-Fe29028	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M19-Fe29028	CP	mg/kg	< 0.5	< 0.5	<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
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Andrew Black	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)

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.