



Material Management Options

East Seaham Road, Seaham

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Written by: Fletcher Harris (Graduate Environmental Scientist)

Reviewed by: Jake Duck (Environmental Scientist)

Email: office@hunterenviro.com.au

Client: Hunter Civilab



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Prepared for

Hunter Civilab

Unit 2/40 Glenwood Drive

Thornton NSW 2322

Ph: 02 4966 1844

Email: office@huntercivilab.com.au

Web: huntercivilab.com.au

Prepared by

Hunter Environmental Consulting

ABN 16 661 108 014

3/62 Sandringham Avenue

PO Box 3127

Thornton NSW 2322

Ph: (02) 4067 4151

Email: office@hunterenviro.com.au

Web: hunterenviro.com.au

Project Details

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Project Type:	Material Management Options

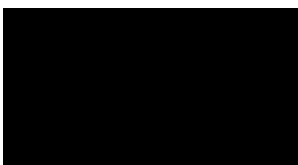
Project no	Report type	Report no
E0208	MMO	001

Report Register

Revision Number	Reported By	Reviewed By	Date
Rev0	FH	JD	21/06/2024

We confirm that the following report has been produced for Hunter Civilab, based on the described methods and conditions within.

For and on behalf of Hunter Environmental Consulting,



Marc Henty

General Manager

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1 Introduction

1.1 Background

Hunter Environmental Consulting (HEC) was engaged by Hunter Civilab to conduct a preliminary material classification of soils located at East Seaham Road (here-in referred to as the Site). It is understood the purpose of this assessment is to provide the likely classification of spoil generated as part of the redevelopment works. Material is to be assessed against chemical criteria stipulated within the *Recovered Aggregate & Excavated Natural Material (ENM) Orders* (NSW Environmental Protection Authority, 2014) and to visually assess subgrade against Virgin Excavated Natural Material (VENM) definitions as referenced by The Protection of the Environment Operations Act 1997 (POEO Act).

The investigation works were undertaken in accordance with HC services agreement EQ0523, dated the 9th of May 2024.

2 Desktop Investigation

2.1 Acid Sulfate Soils Risk Maps

Review of the ePlanning (2020) Spatial Viewer online database identifies the Site as not being within an acid sulfate soils (ASS) area. Additionally, a review of the State of NSW and Department of Planning, Industry and Environment (2020) - eSPADE database identifies the material location and local surroundings fall within an area of no known ASS occurrence. Based on the Site locality, acid sulfate soils risk maps and observations in the field, ASS assessment was deemed unnecessary for this assessment.

3 Objectives & Scope of Work

The objective of this investigation was to assess the likely suitability of surplus material for off-site reuse opportunities or disposal requirements. The scope of works completed is characterised by the following core elements:

- Review of the ePlanning (2020) and eSPADE (2022) database to determine the presence of acid sulfate soils (already completed);
- Collection of fifteen (15) primary soil samples from the road corridor, comprising of one discrete sample per location;
- Visual assessment of underlying subgrade materials;
- Laboratory analysis of samples for and chemical properties specified in the ENM Order 2014;
- Assessment of analytical results against adopted assessment criteria.

4 Site Works

Site works were completed on the 28th and 29th of May 2024. Site works consisted of the advancement of twenty-eight (28) boreholes within the existing pavement. A total of fifteen (15) locations were sampled for the purposes of preliminary classification.

A soil sample log outlining the physical characteristics of the assessed material is presented below in **Table 4.1**.

Table 4.1 - Soil sample log

Sample ID	Soil Description
BH1-BH22	Silty Sandy GRAVEL, grey/brown

A total of fifteen (15) samples were collected from pavement materials across Site. The sampling density within this investigation is not intended to meet the minimum sampling requirements of the NSW EPA ENM Order 2014 and the Recovered Aggregate Order 2014 has been conducted as a preliminary assessment only.

Samples comprised of fifteen (15) soil jars sent to a NATA accredited laboratory (SGS) sub-contracted to complete analysis specific to targeted analytes. All samples were labelled with unique identifiers referencing the sampling location and date. Soil jars were stored on ice until submission to SGS. A fresh pair of nitrile gloves were used for each sampling location.

A Site Features Plan including assessment area and sampling locations is presented as *Figure 1* of **Annex A**. A photographic log of the assessed material is presented below in Photograph 1.



Photograph 1 –Existing pavement materials observed consistently throughout Site

5 Assessment Criteria

5.1 ENM Order Assessment Criteria

The ENM Order requires assessment against the following criteria:

1. Material must not be impacted by Acid Sulfate Soils (ASS).
2. Material must comprise 98% natural material by weight.
3. Material must satisfy analytical criteria as presented in **Table 5.1** below.

Table 5.1 - ENM Analytical Criteria

Chemicals and other attributes	Max average concentration for characterisation (mg/kg 'dry weight' unless otherwise specified)	Absolute max concentration (mg/kg 'dry weight' unless otherwise specified)
Mercury	0.5	1
Cadmium	0.5	1
Lead	50	100
Arsenic	20	40
Chromium (total)	75	150
Copper	100	200
Nickel	30	60
Zinc	150	300
Electrical Conductivity	1.5 dS/m	3 dS/m
pH *	5 to 9	4.5 to 10
Total Polycyclic Aromatic Hydrocarbons (PAHs)	20	40
Benzo(a)pyrene	0.5	1
Benzene	NA	0.5
Toluene	NA	65
Ethyl-benzene	NA	25
Xylene	NA	15
Total Petroleum Hydrocarbons C ₁₀ - C ₃₆	250	500
Rubber, plastic, bitumen, paper, cloth, paint, and wood	0.05%	0.10%

5.2 Recovered Aggregate Order Assessment Criteria

Table 5.2 – Recovered Aggregate Analytical Criteria

Chemicals and other attributes	Max average concentration for characterisation (mg/kg 'dry weight' unless otherwise specified)	Max average concentration for routine testing (mg/kg 'dry weight' unless otherwise specified)	Absolute max concentration (mg/kg 'dry weight' unless otherwise specified)
Mercury	0.5	Not required	1
Cadmium	0.5	0.5	1.5
Lead	75	75	150
Arsenic	20	Not required	40
Chromium (total)	60	60	120
Copper	60	60	150
Nickel	40	Not required	80
Zinc	200	200	350
Electrical Conductivity	1.5 dS/m	1.5 dS/m	3 dS/m
Metal	1%	1%	2%
Plaster	0.25%	0.25%	0.5%
Rubber, plastic, bitumen, paper, cloth, paint, and wood	0.2%	0.2%	0.3%

5.3 VENM Definitions

The Protection of the Environment Operations Act 1997 defines VENM as natural material (such as clay, gravel, sand, soil or rock fines):

- that has been excavated or quarried from areas that are not contaminated with manufactured chemicals or process residues, as a result of industrial, commercial, mining or agricultural activities;
- that does not contain any sulfidic ores or soils or any other waste.

6 Analytical Results

Results of the chemical analysis were assessed against criteria defined in Table 4 of the *ENM Order 2014* and Table 1 of the *Recovered Aggregate Order 2014* a tabulated summary of this assessment is presented in **Annex B**. In summary:

- Heavy Metals were reported accepted within ENM/Recovered Aggregate Order assessment criteria;
- PAH, TRH and BTEX were reported acceptable within ENM Order assessment criteria;
- Electrical conductivity was reported acceptable within ENM/Recovered Aggregate assessment criteria; and
- pH was reported within acceptable ranges

6.1 Material Management Options

A summary of the preliminary material classifications and potential management options is presented below in **Table 4.2**

Table 6.2 – Preliminary Material Classification Assessment

Material Identification	Fill (pavement) materials were observed across the site to depths of up to 1.2m BGL. Pavement materials consisted of Silty Sandy GRAVEL. Subgrade was observed from depths of 0.1m to 1.3m BGL. Subgrade materials consisted of Silty Sandy Clay.
Material Description	Topsoils - Silty Sandy CLAY, brown, with organics Pavement Materials - Silty Sandy GRAVEL, grey/brown Subgrade - Silty Sandy CLAY, brown / orange, stiff to very stiff
Preliminary Classification (subject to further analysis)	Pavement Materials/Topsoil – ENM or Recovered Aggregate Subgrade – VENM

6.2 Quality Assurance / Quality Control

Quality assurance measures for environmental sampling within this ENM assessment were adopted to provide confidence in the analytical results to support determinations on material categorisation and to facilitate satisfaction of project-specific objectives. Adopted measures included complimentary regimes of field and laboratory-based quality assurance techniques and quality control sampling/analysis. Quality assurance measures, results and implications for data quality associated with this assessment is broadly defined within the following categories:

- Sample collection, storage transport and analysis
- Laboratory quality control procedures and results
- The occurrence of apparently unusual and anomalous results

Tabulated assessments of laboratory quality control samples are presented within **Annex C**. In summary, the analytical data is considered sufficiently complete, representative, comparable, accurate and precise to serve as an adequate basis for interpretation for the purposes of this project.

7 Conclusion

HEC was engaged by Hunter Civilab to assess the suitability of in-situ material at East Seaham Road for preliminary waste classification of in-situ materials for proposed disposal/reuse options.

The assessment included a desktop review of available information (i.e., acid sulfate risk maps) a visual inspection of soil at the Site and a collection of fifteen (15) primary samples for analysis.

Pavement materials within the road corridor was reported acceptable against ENM and Recovered Aggregate Order assessment criteria. Additional testing in accordance with the specified sampling densities and testing attributes will be necessary to satisfy the respective recovery order requirements. These materials were also found to be acceptable within threshold criteria of CT1 for General Solid Waste as specified in the *NSW Waste Classification Guidelines (2014)*.

Subgrade materials within the road corridor were deemed acceptable for classification as VENM and are therefore suitable for offsite reuse or disposal under this classification.

8 Report Limitations

HEC considers that the objectives of the original scope as presented in quote EQ0523 of the investigation have been achieved.

The analytical data and recommendations within the above report are subjected to the specific sampling and testing that was undertaken at the time of the current investigation. It should be noted that underlying site soil conditions can vary significantly across a site and the environment can change over time. If conditions encountered during intrusive works are different to those contained in this report HEC should be contacted immediately for site reassessment.

Any and all previous report versions for E0208-MMO-001 are superseded by this report.

If you have any further questions about this report, please contact the undersigned.

For and on behalf of

Hunter Environmental Consulting

Reported by:

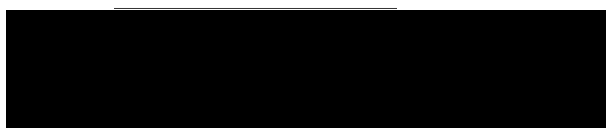


Fletcher Harris

Graduate Environmental Scientist

Bachelor of Environmental Science and
Management

Reviewed by:



Jake Duck

Environmental Scientist

Bachelor of Environmental Science and
Management

References

- National Environmental Protection Council (NEPC). (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999*. Canberra: Office of Parliamentary Council.
- NSW Environmental Protection Authority (EPA). (2014). *Waste Classification Guidelines Part 1: Classifying Waste*. Sydney: NSW Environmental Protection Authority.
- NSW Environmental Protection Authority. (2014). *Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014: The excavated natural material order 2014*. Sydney: NSW Environmental Protection Authority.
- NSW Environmental Protection Authority. (2014). *Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014: The recovered aggregate order 2014*. Sydney: NSW Environmental Protection Authority.



Annex A



Note:

⁽¹⁾ Base layer sourced from NearMap (2024).

Figure 1: Site Plan

LEGEND

 - Borehole Location





Note:
(1) Base layer sourced from NearMap (2024).

Figure 2: Site Plan

LEGEND

 - Borehole Location

Scale (m)





Note:
⁽¹⁾ Base layer sourced from NearMap (2024).

Figure 3: Site Plan

LEGEND

 - Borehole Location





Note:
(1) Base layer sourced from NearMap (2024).

Figure 4: Site Plan

LEGEND

 - Borehole Location





Note:
(1) Base layer sourced from NearMap (2024).

Figure 5: Site Plan

LEGEND

⊕ - Borehole Location





Note:
(1) Base layer sourced from NearMap (2024).

Figure 6: Site Plan

LEGEND

 - Borehole Location





Note:
(1) Base layer sourced from NearMap (2024).

Figure 7: Site Plan

LEGEND

 - Borehole Location





Annex B

Soil Screening Criteria

	Physical Properties		Metals								BTEX				TRH	PAH	
	EC	pH	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury	Benzene	Toluene	Ethylbenzene	Xylenes - Total	TRH C10-C36 Total	Benzo(a)pyrene	Total PAH (18)
	dS/m	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit of Reporting	10	0.1	1	0.3	0.5	0.5	1	0.5	2	0.05	0.1	0.1	0.1	0.3	110	0.1	0.8
ENM Order Maximum Average Concentration	1.5	5 - 9	20	0.5	75	100	50	30	150	0.5	NA	NA	NA	NA	250	0.5	20
ENM Order Absolute Maximum	3	4.5 - 10	40	1	150	200	100	60	300	1	0.5	65	25	15	500	1	40

Sample ID	Sampled Date																	
BHR1 0.1-0.2	28/5/2024	0.07	9.5	3	<0.3	3.4	1.4	7	1.6	18	<0.05	<0.1	<0.1	<0.1	<0.3	<110	<0.1	<0.8
BH1 0.0-0.3	28/5/2024	0.01	9.5	3	<0.3	4.6	2.9	6	2.8	26	<0.05	<0.1	<0.1	<0.1	<0.3	<110	<0.1	<0.8
BH6 0.1-0.2	28/5/2024	0.08	9.5	2	<0.3	3.8	3.2	6	2.2	19	<0.05	<0.1	<0.1	<0.1	<0.3	<110	<0.1	<0.8
BH7 0.1-0.2	28/5/2024	0.07	9.4	3	<0.3	3.0	1.8	6	1.7	19	<0.05	<0.1	<0.1	<0.1	<0.3	<110	<0.1	<0.8
BH10 0.1-0.2	28/5/2024	0.07	9.5	2	<0.3	3.6	2.7	5	2.3	21	<0.05	<0.1	<0.1	<0.1	<0.3	<110	<0.1	<0.8
BH12 0.1-0.2	28/5/2024	0.07	9.6	2	<0.3	2.7	2.5	6	2.4	20	<0.05	<0.1	<0.1	<0.1	<0.3	<110	<0.1	<0.8
BH13 0.1-0.2	28/5/2024	0.08	9.5	3	<0.3	3.1	2.4	6	2.2	21	<0.05	<0.1	<0.1	<0.1	<0.3	<110	<0.1	<0.8
BH14 0.1-0.2	28/5/2024	0.09	9.5	3	<0.3	3.2	2.5	6	1.9	23	<0.05	<0.1	<0.1	<0.1	<0.3	<110	<0.1	<0.8
BH15 0.1-0.2	29/5/2024	0.08	9.1	4	<0.3	4.7	1.4	11	1.5	19	<0.05	<0.1	<0.1	<0.1	<0.3	<110	<0.1	<0.8
BH16 0.1-0.2	29/5/2024	0.07	9.5	3	<0.3	2.6	2.2	6	1.9	21	<0.05	<0.1	<0.1	<0.1	<0.3	<110	<0.1	<0.8
BH17 0.1-0.2	29/5/2024	0.10	9.4	2	<0.3	2.9	2.6	5	2.2	22	<0.05	<0.1	<0.1	<0.1	<0.3	<110	<0.1	<0.8
BH18 0.1-0.2	29/5/2024	0.06	8.8	2	<0.3	2.3	1.5	5	1.7	17	<0.05	<0.1	<0.1	<0.1	<0.3	<110	<0.1	<0.8
BH20 0.1-0.2	29/5/2024	0.09	9.5	3	<0.3	3.6	4.4	7	2.6	32	<0.05	<0.1	<0.1	<0.1	<0.3	<110	<0.1	<0.8
BH21 0.1-0.2	29/5/2024	0.09	9.5	2	<0.3	3.0	2.2	5	1.9	20	<0.05	<0.1	<0.1	<0.1	<0.3	<110	<0.1	<0.8
BH22 0.0-0.1	29/5/2024	0.09	9.5	3	<0.3	3.1	2.7	6	2.0	21	<0.05	<0.1	<0.1	<0.1	<0.3	<110	<0.1	<0.8

Statistical Summary																	
Number of Results		15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Number of Detects		15	15	15	0	15	15	15	15	0	0	0	0	0	0	0	0
Minimum Concentration		0.011	8.8	2	0	2.3	1.4	5	1.5	17	0	0	0	0	0	0	0
Maximum Concentration		0.096	9.6	4	0	4.7	4.4	11	2.8	32	0	0	0	0	0	0	0
Average Concentration		0.08	9.42	2.67	-	3.31	2.43	6.20	2.06	21.27	-	-	-	-	-	-	-
Number of Guideline Exceedances		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Soil Screening Criteria

		EC	Metals							
		Electrical Conductivity (EC)	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury
		dS/m	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit of Reporting (LOR)		10	1	0.3	0.5	0.5	1	0.5	2	0.5
Recovered Aggregate Maximum Average		1.5	20	0.5	60	60	75	40	200	0.5
Recovered Aggregate Absolute Maximum		3	40	1.5	120	150	150	80	350	1
Sample ID	Sampled Date									
BHR1 0.1-0.2	28/5/2024	0.07	3	<0.3	3.4	1.4	7	1.6	18	<0.05
BH1 0.0-0.3	28/5/2024	0.01	3	<0.3	4.6	2.9	6	2.8	26	<0.05
BH6 0.1-0.2	28/5/2024	0.08	2	<0.3	3.8	3.2	6	2.2	19	<0.05
BH7 0.1-0.2	28/5/2024	0.07	3	<0.3	3.0	1.8	6	1.7	19	<0.05
BH10 0.1-0.2	28/5/2024	0.07	2	<0.3	3.6	2.7	5	2.3	21	<0.05
BH12 0.1-0.2	28/5/2024	0.07	2	<0.3	2.7	2.5	6	2.4	20	<0.05
BH13 0.1-0.2	28/5/2024	0.08	3	<0.3	3.1	2.4	6	2.2	21	<0.05
BH14 0.1-0.2	28/5/2024	0.09	3	<0.3	3.2	2.5	6	1.9	23	<0.05
BH15 0.1-0.2	29/5/2024	0.08	4	<0.3	4.7	1.4	11	1.5	19	<0.05
BH16 0.1-0.2	29/5/2024	0.07	3	<0.3	2.6	2.2	6	1.9	21	<0.05
BH17 0.1-0.2	29/5/2024	0.10	2	<0.3	2.9	2.6	5	2.2	22	<0.05
BH18 0.1-0.2	29/5/2024	0.06	2	<0.3	2.3	1.5	5	1.7	17	<0.05
BH20 0.1-0.2	29/5/2024	0.09	3	<0.3	3.6	4.4	7	2.6	32	<0.05
BH21 0.1-0.2	29/5/2024	0.09	2	<0.3	3.0	2.2	5	1.9	20	<0.05
BH22 0.0-0.1	29/5/2024	0.09	3	<0.3	3.1	2.7	6	2.0	21	<0.05
Statistical Summary										
Number of Results		15	15	15	15	15	15	15	15	15
Number of Detects		15	15	0	15	15	15	15	15	0
Minimum Concentration		0.011	2	0	2.3	1.4	5	1.5	17	0
Maximum Concentration		0.096	4	0	4.7	4.4	11	2.8	32	0
Average Concentration		0.08	2.67	-	3.31	2.43	6.20	2.06	21.27	-
Number of Guideline Exceedances		0	0	0	0	0	0	0	0	0

Soil Screening Criteria

	BTEX/VOC				Metals						TRH NEPM (1999)		PAH	
	Benzene	Toluene	Ethylbenzene	Xylene Total	Arsenic	Cadmium	Chromium	Lead	Nickel	Mercury	TRH >C10-C36	TRH C6-C9	Benzo(a)pyrene	Total PAH
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit of Reporting	0.1	0.1	0.1	0.3	1	0.3	0.5	1	5	0.05	110	20	0.1	0.8
CT1	10	288	600	1000	100	20	100	100	40	4	10000	650	1.4	200
CT2	40	1152	2400	4000	400	80	400	400	160	16	40000	2600	3.2	800
SCC1	18	518	1080	1800	500	100	1900	1500	1050	50	10000	650	10	200
SCC2	72	2073	4320	7200	2000	400	7600	6000	4200	200	40000	2600	23	800
HSL Asbestos Surface Soils (NEPM 2013)														

Sample ID	Sampled Date														
BHR1 0.1-0.2	28/5/2024	<0.1	<0.1	<0.1	<0.3	3	<0.3	3.4	7	1.6	<0.05	<110	<20	<0.1	<0.8
BH1 0.0-0.3	28/5/2024	<0.1	<0.1	<0.1	<0.3	3	<0.3	4.6	6	2.8	<0.05	<110	<20	<0.1	<0.8
BH6 0.1-0.2	28/5/2024	<0.1	<0.1	<0.1	<0.3	2	<0.3	3.8	6	2.2	<0.05	<110	<20	<0.1	<0.8
BH7 0.1-0.2	28/5/2024	<0.1	<0.1	<0.1	<0.3	3	<0.3	3.0	6	1.7	<0.05	<110	<20	<0.1	<0.8
BH10 0.1-0.2	28/5/2024	<0.1	<0.1	<0.1	<0.3	2	<0.3	3.6	5	2.3	<0.05	<110	<20	<0.1	<0.8
BH12 0.1-0.2	28/5/2024	<0.1	<0.1	<0.1	<0.3	2	<0.3	2.7	6	2.4	<0.05	<110	<20	<0.1	<0.8
BH13 0.1-0.2	28/5/2024	<0.1	<0.1	<0.1	<0.3	3	<0.3	3.1	6	2.2	<0.05	<110	<20	<0.1	<0.8
BH14 0.1-0.2	28/5/2024	<0.1	<0.1	<0.1	<0.3	3	<0.3	3.2	6	1.9	<0.05	<110	<20	<0.1	<0.8
BH15 0.1-0.2	29/5/2024	<0.1	<0.1	<0.1	<0.3	4	<0.3	4.7	11	1.5	<0.05	<110	<20	<0.1	<0.8
BH16 0.1-0.2	29/5/2024	<0.1	<0.1	<0.1	<0.3	3	<0.3	2.6	6	1.9	<0.05	<110	<20	<0.1	<0.8
BH17 0.1-0.2	29/5/2024	<0.1	<0.1	<0.1	<0.3	2	<0.3	2.9	5	2.2	<0.05	<110	<20	<0.1	<0.8
BH18 0.1-0.2	29/5/2024	<0.1	<0.1	<0.1	<0.3	2	<0.3	2.3	5	1.7	<0.05	<110	<20	<0.1	<0.8
BH20 0.1-0.2	29/5/2024	<0.1	<0.1	<0.1	<0.3	3	<0.3	3.6	7	2.6	<0.05	<110	<20	<0.1	<0.8
BH21 0.1-0.2	29/5/2024	<0.1	<0.1	<0.1	<0.3	2	<0.3	3.0	5	1.9	<0.05	<110	<20	<0.1	<0.8
BH22 0.0-0.1	29/5/2024	<0.1	<0.1	<0.1	<0.3	3	<0.3	3.1	6	2.0	<0.05	<110	<20	<0.1	<0.8

Statistical Summary															
Number of Results		15	15	15	15	15	15	15	15	15	15	15	15	15	15
Number of Detects		0	0	0	0	15	0	15	15	15	0	0	0	0	0
Minimum Detect		0	0	0	0	2	0	2.3	5	1.5	0	0	0	0	0
Maximum Detect		0	0	0	0	4	0	4.7	11	2.8	0	0	0	0	0
Average Concentration		-	-	-	-	2.6667	-	3.3067	6.2	2.06	-	-	-	-	-
Number of Guideline Exceedances		0	0	0	0	0	0	0	0	0	0	0	0	0	0



Annex C

CLIENT DETAILS

Contact **Result**
 Client **HUNTER ENVIRONMENTAL CONSULTING PTY LTD**
 Address **PO BOX 3127**
THORNTON NSW 2322

Telephone **61 2 49661844**
 Facsimile **(Not specified)**
 Email **Results@hunterenviro.com.au**
 Project **E0208 (Seaham)**
 Order Number **HEC0407**
 Samples **15**

LABORATORY DETAILS

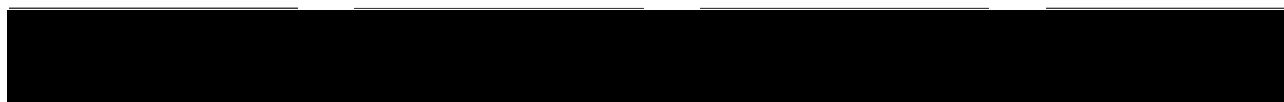
Manager **Huong Crawford**
 Laboratory **SGS Alexandria Environmental**
 Address **Unit 16, 33 Maddox St**
Alexandria NSW 2015

Telephone **+61 2 8594 0400**
 Facsimile **+61 2 8594 0499**
 Email **au.environmental.sydney@sgs.com**
 SGS Reference **SE266094 R0**
 Date Received **31/5/2024**
 Date Reported **7/6/2024**

COMMENTS

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

SIGNATORIES



Akheeqar BENIAMEEN
 Chemist

Bennet LO
 Senior Chemist

Dong LIANG
 Metals/Inorganics Team Leader

Kamrul AHSAN
 Senior Chemist



Ly Kim HA
 Organic Section Head

Shane MCDERMOTT
 Inorganic/Metals Chemist

Ying Ying ZHANG
 Laboratory Technician

VOC's in Soil [AN433] Tested: 4/6/2024

PARAMETER	UOM	LOR	BHR1 0.1-0.2	BH1 0.0-0.3	BH6 0.1-0.2	BH7 0.1-0.2	BH10 0.1-0.2
			SOIL	SOIL	SOIL	SOIL	SOIL
			28/5/2024 SE266094.001	28/5/2024 SE266094.002	28/5/2024 SE266094.003	28/5/2024 SE266094.004	28/5/2024 SE266094.005
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH12 0.1-0.2	BH13 0.1-0.2	BH14 0.1-0.2	BH15 0.1-0.2	BH16 0.1-0.2
			SOIL	SOIL	SOIL	SOIL	SOIL
			28/5/2024 SE266094.006	28/5/2024 SE266094.007	28/5/2024 SE266094.008	29/5/2024 SE266094.009	29/5/2024 SE266094.010
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH17 0.1-0.2	BH18 0.1-0.2	BH20 0.1-0.2	BH21 0.1-0.2	BH22 0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			29/5/2024 SE266094.011	29/5/2024 SE266094.012	29/5/2024 SE266094.013	29/5/2024 SE266094.014	29/5/2024 SE266094.015
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 4/6/2024

PARAMETER	UOM	LOR	BHR1 0.1-0.2	BH1 0.0-0.3	BH6 0.1-0.2	BH7 0.1-0.2	BH10 0.1-0.2
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			28/5/2024 SE266094.001	28/5/2024 SE266094.002	28/5/2024 SE266094.003	28/5/2024 SE266094.004	28/5/2024 SE266094.005
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH12 0.1-0.2	BH13 0.1-0.2	BH14 0.1-0.2	BH15 0.1-0.2	BH16 0.1-0.2
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			28/5/2024 SE266094.006	28/5/2024 SE266094.007	28/5/2024 SE266094.008	29/5/2024 SE266094.009	29/5/2024 SE266094.010
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH17 0.1-0.2	BH18 0.1-0.2	BH20 0.1-0.2	BH21 0.1-0.2	BH22 0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			29/5/2024 SE266094.011	29/5/2024 SE266094.012	29/5/2024 SE266094.013	29/5/2024 SE266094.014	29/5/2024 SE266094.015
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 4/6/2024

PARAMETER	UOM	LOR	BHR1 0.1-0.2	BH1 0.0-0.3	BH6 0.1-0.2	BH7 0.1-0.2	BH10 0.1-0.2
			SOIL	SOIL	SOIL	SOIL	SOIL
			28/5/2024 SE266094.001	28/5/2024 SE266094.002	28/5/2024 SE266094.003	28/5/2024 SE266094.004	28/5/2024 SE266094.005
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH12 0.1-0.2	BH13 0.1-0.2	BH14 0.1-0.2	BH15 0.1-0.2	BH16 0.1-0.2
			SOIL	SOIL	SOIL	SOIL	SOIL
			28/5/2024 SE266094.006	28/5/2024 SE266094.007	28/5/2024 SE266094.008	29/5/2024 SE266094.009	29/5/2024 SE266094.010
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH17 0.1-0.2	BH18 0.1-0.2	BH20 0.1-0.2	BH21 0.1-0.2	BH22 0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			29/5/2024 SE266094.011	29/5/2024 SE266094.012	29/5/2024 SE266094.013	29/5/2024 SE266094.014	29/5/2024 SE266094.015
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 4/6/2024

PARAMETER	UOM	LOR	BHR1 0.1-0.2	BH1 0.0-0.3	BH6 0.1-0.2	BH7 0.1-0.2	BH10 0.1-0.2
			SOIL	SOIL	SOIL	SOIL	SOIL
			28/5/2024 SE266094.001	28/5/2024 SE266094.002	28/5/2024 SE266094.003	28/5/2024 SE266094.004	28/5/2024 SE266094.005
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	0.2	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	0.1	0.2	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	BH12 0.1-0.2	BH13 0.1-0.2	BH14 0.1-0.2	BH15 0.1-0.2	BH16 0.1-0.2
			SOIL	SOIL	SOIL	SOIL	SOIL
			28/5/2024 SE266094.006	28/5/2024 SE266094.007	28/5/2024 SE266094.008	29/5/2024 SE266094.009	29/5/2024 SE266094.010
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 4/6/2024 (continued)

PARAMETER	UOM	LOR	BH17 0.1-0.2	BH18 0.1-0.2	BH20 0.1-0.2	BH21 0.1-0.2	BH22 0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			29/5/2024 SE266094.011	29/5/2024 SE266094.012	29/5/2024 SE266094.013	29/5/2024 SE266094.014	29/5/2024 SE266094.015
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

pH in soil (1:5) [AN101] Tested: 4/6/2024

			BHR1 0.1-0.2	BH1 0.0-0.3	BH6 0.1-0.2	BH7 0.1-0.2	BH10 0.1-0.2
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			28/5/2024	28/5/2024	28/5/2024	28/5/2024	28/5/2024
PARAMETER	UOM	LOR	SE266094.001	SE266094.002	SE266094.003	SE266094.004	SE266094.005
pH	pH Units	0.1	9.5	9.5	9.5	9.4	9.5

			BH12 0.1-0.2	BH13 0.1-0.2	BH14 0.1-0.2	BH15 0.1-0.2	BH16 0.1-0.2
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			28/5/2024	28/5/2024	28/5/2024	29/5/2024	29/5/2024
PARAMETER	UOM	LOR	SE266094.006	SE266094.007	SE266094.008	SE266094.009	SE266094.010
pH	pH Units	0.1	9.6	9.5	9.5	9.1	9.5

			BH17 0.1-0.2	BH18 0.1-0.2	BH20 0.1-0.2	BH21 0.1-0.2	BH22 0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			29/5/2024	29/5/2024	29/5/2024	29/5/2024	29/5/2024
PARAMETER	UOM	LOR	SE266094.011	SE266094.012	SE266094.013	SE266094.014	SE266094.015
pH	pH Units	0.1	9.4	8.8	9.5	9.5	9.5

Conductivity and TDS by Calculation - Soil [AN106] Tested: 4/6/2024

PARAMETER	UOM	LOR	BHR1 0.1-0.2	BH1 0.0-0.3	BH6 0.1-0.2	BH7 0.1-0.2	BH10 0.1-0.2
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			28/5/2024	28/5/2024	28/5/2024	28/5/2024	28/5/2024
			SE266094.001	SE266094.002	SE266094.003	SE266094.004	SE266094.005
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	73	110	79	65	72

PARAMETER	UOM	LOR	BH12 0.1-0.2	BH13 0.1-0.2	BH14 0.1-0.2	BH15 0.1-0.2	BH16 0.1-0.2
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			28/5/2024	28/5/2024	28/5/2024	29/5/2024	29/5/2024
			SE266094.006	SE266094.007	SE266094.008	SE266094.009	SE266094.010
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	72	81	92	84	72

PARAMETER	UOM	LOR	BH17 0.1-0.2	BH18 0.1-0.2	BH20 0.1-0.2	BH21 0.1-0.2	BH22 0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			29/5/2024	29/5/2024	29/5/2024	29/5/2024	29/5/2024
			SE266094.011	SE266094.012	SE266094.013	SE266094.014	SE266094.015
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	96	58	93	91	87

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 4/6/2024

PARAMETER	UOM	LOR	BHR1 0.1-0.2	BH1 0.0-0.3	BH6 0.1-0.2	BH7 0.1-0.2	BH10 0.1-0.2
			SOIL	SOIL	SOIL	SOIL	SOIL
			28/5/2024 SE266094.001	28/5/2024 SE266094.002	28/5/2024 SE266094.003	28/5/2024 SE266094.004	28/5/2024 SE266094.005
Arsenic, As	mg/kg	1	3	3	2	3	2
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	3.4	4.6	3.8	3.0	3.6
Copper, Cu	mg/kg	0.5	1.4	2.9	3.2	1.8	2.7
Lead, Pb	mg/kg	1	7	6	6	6	5
Nickel, Ni	mg/kg	0.5	1.6	2.8	2.2	1.7	2.3
Zinc, Zn	mg/kg	2	18	26	19	19	21

PARAMETER	UOM	LOR	BH12 0.1-0.2	BH13 0.1-0.2	BH14 0.1-0.2	BH15 0.1-0.2	BH16 0.1-0.2
			SOIL	SOIL	SOIL	SOIL	SOIL
			28/5/2024 SE266094.006	28/5/2024 SE266094.007	28/5/2024 SE266094.008	29/5/2024 SE266094.009	29/5/2024 SE266094.010
Arsenic, As	mg/kg	1	2	3	3	4	3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	2.7	3.1	3.2	4.7	2.6
Copper, Cu	mg/kg	0.5	2.5	2.4	2.5	1.4	2.2
Lead, Pb	mg/kg	1	6	6	6	11	6
Nickel, Ni	mg/kg	0.5	2.4	2.2	1.9	1.5	1.9
Zinc, Zn	mg/kg	2	20	21	23	19	21

PARAMETER	UOM	LOR	BH17 0.1-0.2	BH18 0.1-0.2	BH20 0.1-0.2	BH21 0.1-0.2	BH22 0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			29/5/2024 SE266094.011	29/5/2024 SE266094.012	29/5/2024 SE266094.013	29/5/2024 SE266094.014	29/5/2024 SE266094.015
Arsenic, As	mg/kg	1	2	2	3	2	3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	2.9	2.3	3.6	3.0	3.1
Copper, Cu	mg/kg	0.5	2.6	1.5	4.4	2.2	2.7
Lead, Pb	mg/kg	1	5	5	7	5	6
Nickel, Ni	mg/kg	0.5	2.2	1.7	2.6	1.9	2.0
Zinc, Zn	mg/kg	2	22	17	32	20	21

Mercury in Soil [AN312] Tested: 4/6/2024

			BHR1 0.1-0.2	BH1 0.0-0.3	BH6 0.1-0.2	BH7 0.1-0.2	BH10 0.1-0.2
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			28/5/2024	28/5/2024	28/5/2024	28/5/2024	28/5/2024
PARAMETER	UOM	LOR	SE266094.001	SE266094.002	SE266094.003	SE266094.004	SE266094.005
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

			BH12 0.1-0.2	BH13 0.1-0.2	BH14 0.1-0.2	BH15 0.1-0.2	BH16 0.1-0.2
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			28/5/2024	28/5/2024	28/5/2024	29/5/2024	29/5/2024
PARAMETER	UOM	LOR	SE266094.006	SE266094.007	SE266094.008	SE266094.009	SE266094.010
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

			BH17 0.1-0.2	BH18 0.1-0.2	BH20 0.1-0.2	BH21 0.1-0.2	BH22 0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			29/5/2024	29/5/2024	29/5/2024	29/5/2024	29/5/2024
PARAMETER	UOM	LOR	SE266094.011	SE266094.012	SE266094.013	SE266094.014	SE266094.015
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 4/6/2024

PARAMETER	UOM	LOR	BHR1 0.1-0.2	BH1 0.0-0.3	BH6 0.1-0.2	BH7 0.1-0.2	BH10 0.1-0.2
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			28/5/2024	28/5/2024	28/5/2024	28/5/2024	28/5/2024
			SE266094.001	SE266094.002	SE266094.003	SE266094.004	SE266094.005
% Moisture	%w/w	1	7.0	7.4	4.9	6.5	6.6

PARAMETER	UOM	LOR	BH12 0.1-0.2	BH13 0.1-0.2	BH14 0.1-0.2	BH15 0.1-0.2	BH16 0.1-0.2
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			28/5/2024	28/5/2024	28/5/2024	29/5/2024	29/5/2024
			SE266094.006	SE266094.007	SE266094.008	SE266094.009	SE266094.010
% Moisture	%w/w	1	6.2	6.6	5.6	4.2	5.7

PARAMETER	UOM	LOR	BH17 0.1-0.2	BH18 0.1-0.2	BH20 0.1-0.2	BH21 0.1-0.2	BH22 0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			29/5/2024	29/5/2024	29/5/2024	29/5/2024	29/5/2024
			SE266094.011	SE266094.012	SE266094.013	SE266094.014	SE266094.015
% Moisture	%w/w	1	6.0	5.8	7.3	6.7	6.3

METHOD

METHODOLOGY SUMMARY

AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by AAS or ICP as per USEPA Method 200.8.
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode and is calibrated against 3 buffers purchased commercially. For soils, sediments and sludges, an extract with water (or 0.01M CaCl ₂) is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN106	Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos/cm or µS/cm @ 25°C. For soils, an extract of as received sample with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Salinity can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. Reference APHA 2510 B.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D). Total PAH calculated from individual analyte detections at or above the limit of reporting.
AN420	Carcinogenic PAHs may be expressed as Benzo(a)pyrene equivalents by applying the BaP toxicity equivalence factor (NEPM 1999, June 2013, B7). These can be reported as the individual PAHs and as a sum of carcinogenic PAHs. The sum is reported three ways, the first assuming all <LOR results are zero, the second assuming all <LOR results are half the LOR and the third assuming all <LOR results are the LOR.
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC's are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

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

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

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

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

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

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

Note that in terms of units of radioactivity:

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

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

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

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STATEMENT OF QA/QC PERFORMANCE

SE266094 R0

CLIENT DETAILS

Contact Result
Client HUNTER ENVIRONMENTAL CONSULTING PTY LTD
Address PO BOX 3127
THORNTON NSW 2322

Telephone 61 2 49661844
Facsimile (Not specified)
Email Results@hunterenviro.com.au

Project **E0208 (Seaham)**
Order Number **HEC0407**
Samples 15

LABORATORY DETAILS

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

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

SGS Reference **SE266094 R0**
Date Received 31 May 2024
Date Reported 07 Jun 2024

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.

This QA/QC Statement must be read in conjunction with the referenced Analytical Report.

The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Analysis Date	Conductivity and TDS by Calculation - Soil	8 items
Surrogate	VOC's in Soil	1 item
	Volatile Petroleum Hydrocarbons in Soil	1 item

SAMPLE SUMMARY

Sample counts by matrix	15 Soil	Type of documentation received	COC
Date documentation received	31/5/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	14.5°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Conductivity and TDS by Calculation - Soil

Method: ME-(AU)-ENVJAN106

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BHR1 0.1-0.2	SE266094.001	LB314034	28 May 2024	31 May 2024	04 Jun 2024	04 Jun 2024	04 Jun 2024	05 Jun 2024†
BH1 0.0-0.3	SE266094.002	LB314034	28 May 2024	31 May 2024	04 Jun 2024	04 Jun 2024	04 Jun 2024	05 Jun 2024†
BH6 0.1-0.2	SE266094.003	LB314034	28 May 2024	31 May 2024	04 Jun 2024	04 Jun 2024	04 Jun 2024	05 Jun 2024†
BH7 0.1-0.2	SE266094.004	LB314034	28 May 2024	31 May 2024	04 Jun 2024	04 Jun 2024	04 Jun 2024	05 Jun 2024†
BH10 0.1-0.2	SE266094.005	LB314034	28 May 2024	31 May 2024	04 Jun 2024	04 Jun 2024	04 Jun 2024	05 Jun 2024†
BH12 0.1-0.2	SE266094.006	LB314034	28 May 2024	31 May 2024	04 Jun 2024	04 Jun 2024	04 Jun 2024	05 Jun 2024†
BH13 0.1-0.2	SE266094.007	LB314034	28 May 2024	31 May 2024	04 Jun 2024	04 Jun 2024	04 Jun 2024	05 Jun 2024†
BH14 0.1-0.2	SE266094.008	LB314034	28 May 2024	31 May 2024	04 Jun 2024	04 Jun 2024	04 Jun 2024	05 Jun 2024†
BH15 0.1-0.2	SE266094.009	LB314034	29 May 2024	31 May 2024	05 Jun 2024	04 Jun 2024	05 Jun 2024	05 Jun 2024
BH16 0.1-0.2	SE266094.010	LB314034	29 May 2024	31 May 2024	05 Jun 2024	04 Jun 2024	05 Jun 2024	05 Jun 2024
BH17 0.1-0.2	SE266094.011	LB314034	29 May 2024	31 May 2024	05 Jun 2024	04 Jun 2024	05 Jun 2024	05 Jun 2024
BH18 0.1-0.2	SE266094.012	LB314034	29 May 2024	31 May 2024	05 Jun 2024	04 Jun 2024	05 Jun 2024	05 Jun 2024
BH20 0.1-0.2	SE266094.013	LB314034	29 May 2024	31 May 2024	05 Jun 2024	04 Jun 2024	05 Jun 2024	05 Jun 2024
BH21 0.1-0.2	SE266094.014	LB314034	29 May 2024	31 May 2024	05 Jun 2024	04 Jun 2024	05 Jun 2024	05 Jun 2024
BH22 0.0-0.1	SE266094.015	LB314034	29 May 2024	31 May 2024	05 Jun 2024	04 Jun 2024	05 Jun 2024	05 Jun 2024

Mercury in Soil

Method: ME-(AU)-ENVJAN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BHR1 0.1-0.2	SE266094.001	LB314007	28 May 2024	31 May 2024	25 Jun 2024	04 Jun 2024	25 Jun 2024	05 Jun 2024
BH1 0.0-0.3	SE266094.002	LB314007	28 May 2024	31 May 2024	25 Jun 2024	04 Jun 2024	25 Jun 2024	05 Jun 2024
BH6 0.1-0.2	SE266094.003	LB314007	28 May 2024	31 May 2024	25 Jun 2024	04 Jun 2024	25 Jun 2024	05 Jun 2024
BH7 0.1-0.2	SE266094.004	LB314007	28 May 2024	31 May 2024	25 Jun 2024	04 Jun 2024	25 Jun 2024	05 Jun 2024
BH10 0.1-0.2	SE266094.005	LB314007	28 May 2024	31 May 2024	25 Jun 2024	04 Jun 2024	25 Jun 2024	05 Jun 2024
BH12 0.1-0.2	SE266094.006	LB314007	28 May 2024	31 May 2024	25 Jun 2024	04 Jun 2024	25 Jun 2024	05 Jun 2024
BH13 0.1-0.2	SE266094.007	LB314007	28 May 2024	31 May 2024	25 Jun 2024	04 Jun 2024	25 Jun 2024	05 Jun 2024
BH14 0.1-0.2	SE266094.008	LB314007	28 May 2024	31 May 2024	25 Jun 2024	04 Jun 2024	25 Jun 2024	05 Jun 2024
BH15 0.1-0.2	SE266094.009	LB314007	29 May 2024	31 May 2024	26 Jun 2024	04 Jun 2024	26 Jun 2024	05 Jun 2024
BH16 0.1-0.2	SE266094.010	LB314007	29 May 2024	31 May 2024	26 Jun 2024	04 Jun 2024	26 Jun 2024	05 Jun 2024
BH17 0.1-0.2	SE266094.011	LB314007	29 May 2024	31 May 2024	26 Jun 2024	04 Jun 2024	26 Jun 2024	05 Jun 2024
BH18 0.1-0.2	SE266094.012	LB314007	29 May 2024	31 May 2024	26 Jun 2024	04 Jun 2024	26 Jun 2024	05 Jun 2024
BH20 0.1-0.2	SE266094.013	LB314007	29 May 2024	31 May 2024	26 Jun 2024	04 Jun 2024	26 Jun 2024	05 Jun 2024
BH21 0.1-0.2	SE266094.014	LB314007	29 May 2024	31 May 2024	26 Jun 2024	04 Jun 2024	26 Jun 2024	05 Jun 2024
BH22 0.0-0.1	SE266094.015	LB314007	29 May 2024	31 May 2024	26 Jun 2024	04 Jun 2024	26 Jun 2024	05 Jun 2024

Moisture Content

Method: ME-(AU)-ENVJAN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BHR1 0.1-0.2	SE266094.001	LB314011	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	09 Jun 2024	05 Jun 2024
BH1 0.0-0.3	SE266094.002	LB314011	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	09 Jun 2024	05 Jun 2024
BH6 0.1-0.2	SE266094.003	LB314011	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	09 Jun 2024	05 Jun 2024
BH7 0.1-0.2	SE266094.004	LB314011	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	09 Jun 2024	05 Jun 2024
BH10 0.1-0.2	SE266094.005	LB314011	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	09 Jun 2024	05 Jun 2024
BH12 0.1-0.2	SE266094.006	LB314011	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	09 Jun 2024	05 Jun 2024
BH13 0.1-0.2	SE266094.007	LB314011	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	09 Jun 2024	05 Jun 2024
BH14 0.1-0.2	SE266094.008	LB314011	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	09 Jun 2024	05 Jun 2024
BH15 0.1-0.2	SE266094.009	LB314011	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	09 Jun 2024	05 Jun 2024
BH16 0.1-0.2	SE266094.010	LB314011	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	09 Jun 2024	05 Jun 2024
BH17 0.1-0.2	SE266094.011	LB314011	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	09 Jun 2024	05 Jun 2024
BH18 0.1-0.2	SE266094.012	LB314011	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	09 Jun 2024	05 Jun 2024
BH20 0.1-0.2	SE266094.013	LB314011	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	09 Jun 2024	05 Jun 2024
BH21 0.1-0.2	SE266094.014	LB314011	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	09 Jun 2024	05 Jun 2024
BH22 0.0-0.1	SE266094.015	LB314011	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	09 Jun 2024	05 Jun 2024

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-ENVJAN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BHR1 0.1-0.2	SE266094.001	LB313992	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	14 Jul 2024	06 Jun 2024
BH1 0.0-0.3	SE266094.002	LB313992	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	14 Jul 2024	06 Jun 2024
BH6 0.1-0.2	SE266094.003	LB313992	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	14 Jul 2024	06 Jun 2024
BH7 0.1-0.2	SE266094.004	LB313992	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	14 Jul 2024	06 Jun 2024
BH10 0.1-0.2	SE266094.005	LB313992	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	14 Jul 2024	06 Jun 2024
BH12 0.1-0.2	SE266094.006	LB313992	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	14 Jul 2024	06 Jun 2024
BH13 0.1-0.2	SE266094.007	LB313992	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	14 Jul 2024	06 Jun 2024

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-ENVJAN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH14 0.1-0.2	SE266094.008	LB313992	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	14 Jul 2024	06 Jun 2024
BH15 0.1-0.2	SE266094.009	LB313992	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	14 Jul 2024	06 Jun 2024
BH16 0.1-0.2	SE266094.010	LB313992	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	14 Jul 2024	06 Jun 2024
BH17 0.1-0.2	SE266094.011	LB313992	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	14 Jul 2024	06 Jun 2024
BH18 0.1-0.2	SE266094.012	LB313992	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	14 Jul 2024	06 Jun 2024
BH20 0.1-0.2	SE266094.013	LB313992	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	14 Jul 2024	06 Jun 2024
BH21 0.1-0.2	SE266094.014	LB313992	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	14 Jul 2024	06 Jun 2024
BH22 0.0-0.1	SE266094.015	LB313992	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	14 Jul 2024	06 Jun 2024

pH in soil (1:5)

Method: ME-(AU)-ENVJAN101

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BHR1 0.1-0.2	SE266094.001	LB314034	28 May 2024	31 May 2024	04 Jun 2024	04 Jun 2024	05 Jun 2024	04 Jun 2024
BH1 0.0-0.3	SE266094.002	LB314034	28 May 2024	31 May 2024	04 Jun 2024	04 Jun 2024	05 Jun 2024	04 Jun 2024
BH6 0.1-0.2	SE266094.003	LB314034	28 May 2024	31 May 2024	04 Jun 2024	04 Jun 2024	05 Jun 2024	04 Jun 2024
BH7 0.1-0.2	SE266094.004	LB314034	28 May 2024	31 May 2024	04 Jun 2024	04 Jun 2024	05 Jun 2024	04 Jun 2024
BH10 0.1-0.2	SE266094.005	LB314034	28 May 2024	31 May 2024	04 Jun 2024	04 Jun 2024	05 Jun 2024	04 Jun 2024
BH12 0.1-0.2	SE266094.006	LB314034	28 May 2024	31 May 2024	04 Jun 2024	04 Jun 2024	05 Jun 2024	04 Jun 2024
BH13 0.1-0.2	SE266094.007	LB314034	28 May 2024	31 May 2024	04 Jun 2024	04 Jun 2024	05 Jun 2024	04 Jun 2024
BH14 0.1-0.2	SE266094.008	LB314034	28 May 2024	31 May 2024	04 Jun 2024	04 Jun 2024	05 Jun 2024	04 Jun 2024
BH15 0.1-0.2	SE266094.009	LB314034	29 May 2024	31 May 2024	05 Jun 2024	04 Jun 2024	05 Jun 2024	04 Jun 2024
BH16 0.1-0.2	SE266094.010	LB314034	29 May 2024	31 May 2024	05 Jun 2024	04 Jun 2024	05 Jun 2024	04 Jun 2024
BH17 0.1-0.2	SE266094.011	LB314034	29 May 2024	31 May 2024	05 Jun 2024	04 Jun 2024	05 Jun 2024	04 Jun 2024
BH18 0.1-0.2	SE266094.012	LB314034	29 May 2024	31 May 2024	05 Jun 2024	04 Jun 2024	05 Jun 2024	04 Jun 2024
BH20 0.1-0.2	SE266094.013	LB314034	29 May 2024	31 May 2024	05 Jun 2024	04 Jun 2024	05 Jun 2024	04 Jun 2024
BH21 0.1-0.2	SE266094.014	LB314034	29 May 2024	31 May 2024	05 Jun 2024	04 Jun 2024	05 Jun 2024	04 Jun 2024
BH22 0.0-0.1	SE266094.015	LB314034	29 May 2024	31 May 2024	05 Jun 2024	04 Jun 2024	05 Jun 2024	04 Jun 2024

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-ENVJAN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BHR1 0.1-0.2	SE266094.001	LB314003	28 May 2024	31 May 2024	24 Nov 2024	04 Jun 2024	24 Nov 2024	05 Jun 2024
BH1 0.0-0.3	SE266094.002	LB314003	28 May 2024	31 May 2024	24 Nov 2024	04 Jun 2024	24 Nov 2024	05 Jun 2024
BH6 0.1-0.2	SE266094.003	LB314003	28 May 2024	31 May 2024	24 Nov 2024	04 Jun 2024	24 Nov 2024	05 Jun 2024
BH7 0.1-0.2	SE266094.004	LB314003	28 May 2024	31 May 2024	24 Nov 2024	04 Jun 2024	24 Nov 2024	05 Jun 2024
BH10 0.1-0.2	SE266094.005	LB314003	28 May 2024	31 May 2024	24 Nov 2024	04 Jun 2024	24 Nov 2024	05 Jun 2024
BH12 0.1-0.2	SE266094.006	LB314003	28 May 2024	31 May 2024	24 Nov 2024	04 Jun 2024	24 Nov 2024	05 Jun 2024
BH13 0.1-0.2	SE266094.007	LB314003	28 May 2024	31 May 2024	24 Nov 2024	04 Jun 2024	24 Nov 2024	05 Jun 2024
BH14 0.1-0.2	SE266094.008	LB314003	28 May 2024	31 May 2024	24 Nov 2024	04 Jun 2024	24 Nov 2024	05 Jun 2024
BH15 0.1-0.2	SE266094.009	LB314003	29 May 2024	31 May 2024	25 Nov 2024	04 Jun 2024	25 Nov 2024	05 Jun 2024
BH16 0.1-0.2	SE266094.010	LB314003	29 May 2024	31 May 2024	25 Nov 2024	04 Jun 2024	25 Nov 2024	05 Jun 2024
BH17 0.1-0.2	SE266094.011	LB314003	29 May 2024	31 May 2024	25 Nov 2024	04 Jun 2024	25 Nov 2024	05 Jun 2024
BH18 0.1-0.2	SE266094.012	LB314003	29 May 2024	31 May 2024	25 Nov 2024	04 Jun 2024	25 Nov 2024	05 Jun 2024
BH20 0.1-0.2	SE266094.013	LB314003	29 May 2024	31 May 2024	25 Nov 2024	04 Jun 2024	25 Nov 2024	05 Jun 2024
BH21 0.1-0.2	SE266094.014	LB314003	29 May 2024	31 May 2024	25 Nov 2024	04 Jun 2024	25 Nov 2024	05 Jun 2024
BH22 0.0-0.1	SE266094.015	LB314003	29 May 2024	31 May 2024	25 Nov 2024	04 Jun 2024	25 Nov 2024	05 Jun 2024

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-ENVJAN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BHR1 0.1-0.2	SE266094.001	LB313992	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	14 Jul 2024	05 Jun 2024
BH1 0.0-0.3	SE266094.002	LB313992	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	14 Jul 2024	05 Jun 2024
BH6 0.1-0.2	SE266094.003	LB313992	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	14 Jul 2024	05 Jun 2024
BH7 0.1-0.2	SE266094.004	LB313992	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	14 Jul 2024	05 Jun 2024
BH10 0.1-0.2	SE266094.005	LB313992	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	14 Jul 2024	05 Jun 2024
BH12 0.1-0.2	SE266094.006	LB313992	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	14 Jul 2024	05 Jun 2024
BH13 0.1-0.2	SE266094.007	LB313992	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	14 Jul 2024	05 Jun 2024
BH14 0.1-0.2	SE266094.008	LB313992	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	14 Jul 2024	05 Jun 2024
BH15 0.1-0.2	SE266094.009	LB313992	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	14 Jul 2024	05 Jun 2024
BH16 0.1-0.2	SE266094.010	LB313992	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	14 Jul 2024	05 Jun 2024
BH17 0.1-0.2	SE266094.011	LB313992	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	14 Jul 2024	05 Jun 2024
BH18 0.1-0.2	SE266094.012	LB313992	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	14 Jul 2024	05 Jun 2024
BH20 0.1-0.2	SE266094.013	LB313992	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	14 Jul 2024	05 Jun 2024
BH21 0.1-0.2	SE266094.014	LB313992	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	14 Jul 2024	05 Jun 2024



HOLDING TIME SUMMARY

SE266094 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-ENVJAN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH22 0.0-0.1	SE266094.015	LB313992	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	14 Jul 2024	05 Jun 2024

VOC's in Soil

Method: ME-(AU)-ENVJAN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BHR1 0.1-0.2	SE266094.001	LB313998	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	11 Jun 2024	05 Jun 2024
BH1 0.0-0.3	SE266094.002	LB313998	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	11 Jun 2024	05 Jun 2024
BH6 0.1-0.2	SE266094.003	LB313998	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	11 Jun 2024	05 Jun 2024
BH7 0.1-0.2	SE266094.004	LB313998	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	11 Jun 2024	05 Jun 2024
BH10 0.1-0.2	SE266094.005	LB313998	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	11 Jun 2024	05 Jun 2024
BH12 0.1-0.2	SE266094.006	LB313998	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	11 Jun 2024	05 Jun 2024
BH13 0.1-0.2	SE266094.007	LB313998	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	11 Jun 2024	05 Jun 2024
BH14 0.1-0.2	SE266094.008	LB313998	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	11 Jun 2024	05 Jun 2024
BH15 0.1-0.2	SE266094.009	LB313998	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	12 Jun 2024	05 Jun 2024
BH16 0.1-0.2	SE266094.010	LB313998	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	12 Jun 2024	05 Jun 2024
BH17 0.1-0.2	SE266094.011	LB313998	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	12 Jun 2024	05 Jun 2024
BH18 0.1-0.2	SE266094.012	LB313998	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	12 Jun 2024	05 Jun 2024
BH20 0.1-0.2	SE266094.013	LB313998	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	12 Jun 2024	05 Jun 2024
BH21 0.1-0.2	SE266094.014	LB313998	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	12 Jun 2024	05 Jun 2024
BH22 0.0-0.1	SE266094.015	LB313998	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	12 Jun 2024	05 Jun 2024

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-ENVJAN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BHR1 0.1-0.2	SE266094.001	LB313998	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	11 Jun 2024	05 Jun 2024
BH1 0.0-0.3	SE266094.002	LB313998	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	11 Jun 2024	05 Jun 2024
BH6 0.1-0.2	SE266094.003	LB313998	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	11 Jun 2024	05 Jun 2024
BH7 0.1-0.2	SE266094.004	LB313998	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	11 Jun 2024	05 Jun 2024
BH10 0.1-0.2	SE266094.005	LB313998	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	11 Jun 2024	05 Jun 2024
BH12 0.1-0.2	SE266094.006	LB313998	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	11 Jun 2024	05 Jun 2024
BH13 0.1-0.2	SE266094.007	LB313998	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	11 Jun 2024	05 Jun 2024
BH14 0.1-0.2	SE266094.008	LB313998	28 May 2024	31 May 2024	11 Jun 2024	04 Jun 2024	11 Jun 2024	05 Jun 2024
BH15 0.1-0.2	SE266094.009	LB313998	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	12 Jun 2024	05 Jun 2024
BH16 0.1-0.2	SE266094.010	LB313998	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	12 Jun 2024	05 Jun 2024
BH17 0.1-0.2	SE266094.011	LB313998	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	12 Jun 2024	05 Jun 2024
BH18 0.1-0.2	SE266094.012	LB313998	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	12 Jun 2024	05 Jun 2024
BH20 0.1-0.2	SE266094.013	LB313998	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	12 Jun 2024	05 Jun 2024
BH21 0.1-0.2	SE266094.014	LB313998	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	12 Jun 2024	05 Jun 2024
BH22 0.0-0.1	SE266094.015	LB313998	29 May 2024	31 May 2024	12 Jun 2024	04 Jun 2024	12 Jun 2024	05 Jun 2024

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil**Method: ME-(AU)-[ENV]AN420**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BHR1 0.1-0.2	SE266094.001	%	70 - 130%	96
	BH1 0.0-0.3	SE266094.002	%	70 - 130%	98
	BH6 0.1-0.2	SE266094.003	%	70 - 130%	100
	BH7 0.1-0.2	SE266094.004	%	70 - 130%	93
	BH10 0.1-0.2	SE266094.005	%	70 - 130%	97
	BH12 0.1-0.2	SE266094.006	%	70 - 130%	95
	BH13 0.1-0.2	SE266094.007	%	70 - 130%	98
	BH14 0.1-0.2	SE266094.008	%	70 - 130%	97
	BH15 0.1-0.2	SE266094.009	%	70 - 130%	101
	BH16 0.1-0.2	SE266094.010	%	70 - 130%	97
	BH17 0.1-0.2	SE266094.011	%	70 - 130%	99
	BH18 0.1-0.2	SE266094.012	%	70 - 130%	103
	BH20 0.1-0.2	SE266094.013	%	70 - 130%	104
	BH21 0.1-0.2	SE266094.014	%	70 - 130%	97
	BH22 0.0-0.1	SE266094.015	%	70 - 130%	93
d14-p-terphenyl (Surrogate)	BHR1 0.1-0.2	SE266094.001	%	70 - 130%	96
	BH1 0.0-0.3	SE266094.002	%	70 - 130%	99
	BH6 0.1-0.2	SE266094.003	%	70 - 130%	98
	BH7 0.1-0.2	SE266094.004	%	70 - 130%	96
	BH10 0.1-0.2	SE266094.005	%	70 - 130%	98
	BH12 0.1-0.2	SE266094.006	%	70 - 130%	98
	BH13 0.1-0.2	SE266094.007	%	70 - 130%	104
	BH14 0.1-0.2	SE266094.008	%	70 - 130%	95
	BH15 0.1-0.2	SE266094.009	%	70 - 130%	101
	BH16 0.1-0.2	SE266094.010	%	70 - 130%	98
	BH17 0.1-0.2	SE266094.011	%	70 - 130%	101
	BH18 0.1-0.2	SE266094.012	%	70 - 130%	103
	BH20 0.1-0.2	SE266094.013	%	70 - 130%	109
	BH21 0.1-0.2	SE266094.014	%	70 - 130%	100
	BH22 0.0-0.1	SE266094.015	%	70 - 130%	94
d5-nitrobenzene (Surrogate)	BHR1 0.1-0.2	SE266094.001	%	70 - 130%	94
	BH1 0.0-0.3	SE266094.002	%	70 - 130%	99
	BH6 0.1-0.2	SE266094.003	%	70 - 130%	103
	BH7 0.1-0.2	SE266094.004	%	70 - 130%	90
	BH10 0.1-0.2	SE266094.005	%	70 - 130%	95
	BH12 0.1-0.2	SE266094.006	%	70 - 130%	96
	BH13 0.1-0.2	SE266094.007	%	70 - 130%	101
	BH14 0.1-0.2	SE266094.008	%	70 - 130%	100
	BH15 0.1-0.2	SE266094.009	%	70 - 130%	104
	BH16 0.1-0.2	SE266094.010	%	70 - 130%	97
	BH17 0.1-0.2	SE266094.011	%	70 - 130%	97
	BH18 0.1-0.2	SE266094.012	%	70 - 130%	107
	BH20 0.1-0.2	SE266094.013	%	70 - 130%	110
	BH21 0.1-0.2	SE266094.014	%	70 - 130%	101
	BH22 0.0-0.1	SE266094.015	%	70 - 130%	93

VOC's in Soil**Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BHR1 0.1-0.2	SE266094.001	%	60 - 130%	96
	BH1 0.0-0.3	SE266094.002	%	60 - 130%	70
	BH6 0.1-0.2	SE266094.003	%	60 - 130%	85
	BH7 0.1-0.2	SE266094.004	%	60 - 130%	81
	BH10 0.1-0.2	SE266094.005	%	60 - 130%	70
	BH12 0.1-0.2	SE266094.006	%	60 - 130%	71
	BH13 0.1-0.2	SE266094.007	%	60 - 130%	70
	BH14 0.1-0.2	SE266094.008	%	60 - 130%	89
	BH15 0.1-0.2	SE266094.009	%	60 - 130%	88
	BH16 0.1-0.2	SE266094.010	%	60 - 130%	97
	BH17 0.1-0.2	SE266094.011	%	60 - 130%	78
	BH18 0.1-0.2	SE266094.012	%	60 - 130%	98
	BH20 0.1-0.2	SE266094.013	%	60 - 130%	85

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH21 0.1-0.2	SE266094.014	%	60 - 130%	77
	BH22 0.0-0.1	SE266094.015	%	60 - 130%	77
d4-1,2-dichloroethane (Surrogate)	BHR1 0.1-0.2	SE266094.001	%	60 - 130%	101
	BH1 0.0-0.3	SE266094.002	%	60 - 130%	117
	BH6 0.1-0.2	SE266094.003	%	60 - 130%	73
	BH7 0.1-0.2	SE266094.004	%	60 - 130%	70
	BH10 0.1-0.2	SE266094.005	%	60 - 130%	71
	BH12 0.1-0.2	SE266094.006	%	60 - 130%	87
	BH13 0.1-0.2	SE266094.007	%	60 - 130%	87
	BH14 0.1-0.2	SE266094.008	%	60 - 130%	76
	BH15 0.1-0.2	SE266094.009	%	60 - 130%	76
	BH16 0.1-0.2	SE266094.010	%	60 - 130%	99
	BH17 0.1-0.2	SE266094.011	%	60 - 130%	85
	BH18 0.1-0.2	SE266094.012	%	60 - 130%	102
	BH20 0.1-0.2	SE266094.013	%	60 - 130%	73
	BH21 0.1-0.2	SE266094.014	%	60 - 130%	84
	BH22 0.0-0.1	SE266094.015	%	60 - 130%	81
d8-toluene (Surrogate)	BHR1 0.1-0.2	SE266094.001	%	60 - 130%	102
	BH1 0.0-0.3	SE266094.002	%	60 - 130%	134 Ⓢ
	BH6 0.1-0.2	SE266094.003	%	60 - 130%	75
	BH7 0.1-0.2	SE266094.004	%	60 - 130%	71
	BH10 0.1-0.2	SE266094.005	%	60 - 130%	83
	BH12 0.1-0.2	SE266094.006	%	60 - 130%	71
	BH13 0.1-0.2	SE266094.007	%	60 - 130%	70
	BH14 0.1-0.2	SE266094.008	%	60 - 130%	79
	BH15 0.1-0.2	SE266094.009	%	60 - 130%	78
	BH16 0.1-0.2	SE266094.010	%	60 - 130%	102
	BH17 0.1-0.2	SE266094.011	%	60 - 130%	86
	BH18 0.1-0.2	SE266094.012	%	60 - 130%	104
	BH20 0.1-0.2	SE266094.013	%	60 - 130%	74
	BH21 0.1-0.2	SE266094.014	%	60 - 130%	70
	BH22 0.0-0.1	SE266094.015	%	60 - 130%	81

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BHR1 0.1-0.2	SE266094.001	%	60 - 130%	96
	BH1 0.0-0.3	SE266094.002	%	60 - 130%	70
	BH6 0.1-0.2	SE266094.003	%	60 - 130%	85
	BH7 0.1-0.2	SE266094.004	%	60 - 130%	81
	BH10 0.1-0.2	SE266094.005	%	60 - 130%	70
	BH12 0.1-0.2	SE266094.006	%	60 - 130%	71
	BH13 0.1-0.2	SE266094.007	%	60 - 130%	70
	BH14 0.1-0.2	SE266094.008	%	60 - 130%	89
	BH15 0.1-0.2	SE266094.009	%	60 - 130%	88
	BH16 0.1-0.2	SE266094.010	%	60 - 130%	97
	BH17 0.1-0.2	SE266094.011	%	60 - 130%	78
	BH18 0.1-0.2	SE266094.012	%	60 - 130%	98
	BH20 0.1-0.2	SE266094.013	%	60 - 130%	85
	BH21 0.1-0.2	SE266094.014	%	60 - 130%	77
	BH22 0.0-0.1	SE266094.015	%	60 - 130%	77
d4-1,2-dichloroethane (Surrogate)	BHR1 0.1-0.2	SE266094.001	%	60 - 130%	101
	BH1 0.0-0.3	SE266094.002	%	60 - 130%	117
	BH6 0.1-0.2	SE266094.003	%	60 - 130%	73
	BH7 0.1-0.2	SE266094.004	%	60 - 130%	70
	BH10 0.1-0.2	SE266094.005	%	60 - 130%	71
	BH12 0.1-0.2	SE266094.006	%	60 - 130%	87
	BH13 0.1-0.2	SE266094.007	%	60 - 130%	87
	BH14 0.1-0.2	SE266094.008	%	60 - 130%	76
	BH15 0.1-0.2	SE266094.009	%	60 - 130%	76
	BH16 0.1-0.2	SE266094.010	%	60 - 130%	99
	BH17 0.1-0.2	SE266094.011	%	60 - 130%	85

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	BH18 0.1-0.2	SE266094.012	%	60 - 130%	102
	BH20 0.1-0.2	SE266094.013	%	60 - 130%	73
	BH21 0.1-0.2	SE266094.014	%	60 - 130%	84
	BH22 0.0-0.1	SE266094.015	%	60 - 130%	81
d8-toluene (Surrogate)	BHR1 0.1-0.2	SE266094.001	%	60 - 130%	102
	BH1 0.0-0.3	SE266094.002	%	60 - 130%	134 Ⓢ
	BH6 0.1-0.2	SE266094.003	%	60 - 130%	75
	BH7 0.1-0.2	SE266094.004	%	60 - 130%	71
	BH10 0.1-0.2	SE266094.005	%	60 - 130%	83
	BH12 0.1-0.2	SE266094.006	%	60 - 130%	71
	BH13 0.1-0.2	SE266094.007	%	60 - 130%	70
	BH14 0.1-0.2	SE266094.008	%	60 - 130%	79
	BH15 0.1-0.2	SE266094.009	%	60 - 130%	78
	BH16 0.1-0.2	SE266094.010	%	60 - 130%	102
	BH17 0.1-0.2	SE266094.011	%	60 - 130%	86
	BH18 0.1-0.2	SE266094.012	%	60 - 130%	104
	BH20 0.1-0.2	SE266094.013	%	60 - 130%	74
	BH21 0.1-0.2	SE266094.014	%	60 - 130%	70
	BH22 0.0-0.1	SE266094.015	%	60 - 130%	81

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Conductivity and TDS by Calculation - Soil

Method: ME-(AU)-[ENV]AN106

Sample Number	Parameter	Units	LOR	Result
LB314034.001	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	0.91

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB314007.001	Mercury	mg/kg	0.05	<0.05

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB313992.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1
	Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
	Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
	Benzo(ghi)perylene	mg/kg	0.1	<0.1
	Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates			
	d5-nitrobenzene (Surrogate)	%	-	103
	2-fluorobiphenyl (Surrogate)	%	-	99
	d14-p-terphenyl (Surrogate)	%	-	97

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB314003.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB313992.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB313998.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene (VOC)*	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	97
		d8-toluene (Surrogate)	%	-	98
		Bromofluorobenzene (Surrogate)	%	-	91
	Totals	Total BTEX*	mg/kg	0.6	<0.6



Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Volatile Petroleum Hydrocarbons in Soil Method: ME-(AU)-ENVJAN433

Sample Number	Parameter	Units	LOR	Result
LB313998.001	TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-
				97

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Conductivity and TDS by Calculation - Soil

Method: ME-(AU)-[ENV]AN106

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE266094.010	LB314034.014	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	72	35.9426934097	33	9
SE266094.015	LB314034.020	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	87	30.4050847457	32	8

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE266094.010	LB314007.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE266094.015	LB314007.020	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE266094.010	LB314011.011	% Moisture	%w/w	1	5.7	5.4	48	5
SE266144.003	LB314011.020	% Moisture	%w/w	1	15.1	15.6	37	3

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE266094.010	LB313992.014	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
		Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
		Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluoranthene	mg/kg	0.1	<0.1	<0.1	172	0
		Pyrene	mg/kg	0.1	<0.1	<0.1	163	0
		Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=0*	mg/kg	0.2	<0.2	<0.2	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	<0.2	<0.2	175	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	<0.3	<0.3	134	0
		Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	0
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	3
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
SE266144.003	LB313992.023	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
		Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
		Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE266144.003	LB313992.023	Carcinogenic PAHs, BaP TEQ <LOR=0*	mg/kg	0.2	<0.2	<0.2	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	<0.2	<0.2	175	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	<0.3	<0.3	134	0
		Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates						
		d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.4	30	23
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	28
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	25

pH in soil (1:5)

Method: ME-(AU)-[ENV]AN101

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE266094.010	LB314034.014	pH	pH Units	0.1	9.5	9.5	31	1
SE266094.015	LB314034.020	pH	pH Units	0.1	9.5	9.5	31	0

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE266094.010	LB314003.014	Arsenic, As	mg/kg	1	3	2	66	26
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	2.6	2.9	48	11
		Copper, Cu	mg/kg	0.5	2.2	2.3	52	1
		Nickel, Ni	mg/kg	0.5	1.9	2.2	54	10
		Lead, Pb	mg/kg	1	6	6	47	0
		Zinc, Zn	mg/kg	2	21	20	40	5
SE266144.003	LB314003.023	Lead, Pb	mg/kg	1	14	13	37	7

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE266094.010	LB313992.014	TRH C10-C14	mg/kg	20	<20	<20	200	0
		TRH C15-C28	mg/kg	45	<45	<45	200	0
		TRH C29-C36	mg/kg	45	<45	<45	200	0
		TRH C37-C40	mg/kg	100	<100	<100	200	0
		TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
		TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands						
		TRH >C10-C16	mg/kg	25	<25	<25	200	0
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
		TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
SE266144.003	LB313992.023	TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
		TRH C10-C14	mg/kg	20	<20	<20	200	0
		TRH C15-C28	mg/kg	45	<45	<45	200	0
		TRH C29-C36	mg/kg	45	<45	<45	200	0
		TRH C37-C40	mg/kg	100	<100	<100	200	0
		TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
		TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands						
		TRH >C10-C16	mg/kg	25	<25	<25	200	0
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
		TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
		TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE266094.010	LB313998.014	Monocyclic						
		Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic						
		Toluene	mg/kg	0.1	<0.1	<0.1	200	0
		Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
		m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
		o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic						
		Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates						
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.9	8.4	50	17
		d8-toluene (Surrogate)	mg/kg	-	10.2	7.2	50	35
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.7	6.9	50	34
		Totals						
		Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0
		Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
SE266144.003	LB313998.023	Monocyclic						
		Benzene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

VOC's in Soil (continued)

Method: ME-(AU)-ENVJAN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE266144.003	LB313998.023	Monocyclic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
	Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	200	0	
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.7	8.1	50	5	
		d8-toluene (Surrogate)	mg/kg	-	7.2	8.3	50	14	
		Bromofluorobenzene (Surrogate)	mg/kg	-	6.7	9.2	50	31	
	Totals	Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0	
		Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0	

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-ENVJAN433

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE266094.010	LB313998.014	TRH C6-C10	mg/kg	25	<25	<25	200	0	
		TRH C6-C9	mg/kg	20	<20	<20	200	0	
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.9	8.4	50	17
		d8-toluene (Surrogate)	mg/kg	-	10.2	7.2	50	35	
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.7	6.9	50	34	
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
		TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0	
SE266144.003	LB313998.023	TRH C6-C10	mg/kg	25	<25	<25	200	0	
		TRH C6-C9	mg/kg	20	<20	<20	200	0	
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.7	8.1	50	5
		d8-toluene (Surrogate)	mg/kg	-	7.2	8.3	50	14	
		Bromofluorobenzene (Surrogate)	mg/kg	-	6.7	9.2	50	31	
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
		TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0	

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Conductivity and TDS by Calculation - Soil

Method: ME-(AU)-[ENV]AN106

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB314034.002	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	NA	303	85 - 115	95

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB314007.002	Mercury	mg/kg	0.05	0.22	0.2	80 - 120	111

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB313992.002	Naphthalene	mg/kg	0.1	4.4	4	60 - 140	109
	Acenaphthylene	mg/kg	0.1	4.5	4	60 - 140	111
	Acenaphthene	mg/kg	0.1	4.5	4	60 - 140	112
	Phenanthrene	mg/kg	0.1	4.1	4	60 - 140	103
	Anthracene	mg/kg	0.1	5.3	4	60 - 140	133
	Fluoranthene	mg/kg	0.1	4.3	4	60 - 140	107
	Pyrene	mg/kg	0.1	4.6	4	60 - 140	116
	Benzo(a)pyrene	mg/kg	0.1	4.4	4	60 - 140	109
	Surrogates						
	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	91
	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	97
	d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	100

pH in soil (1:5)

Method: ME-(AU)-[ENV]AN101

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB314034.003	pH	pH Units	0.1	7.5	7.415	98 - 102	101

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB314003.002	Arsenic, As	mg/kg	1	340	318.22	80 - 120	106
	Cadmium, Cd	mg/kg	0.3	4.2	4.81	70 - 130	88
	Chromium, Cr	mg/kg	0.5	41	38.31	80 - 120	106
	Copper, Cu	mg/kg	0.5	310	290	80 - 120	108
	Nickel, Ni	mg/kg	0.5	190	187	80 - 120	102
	Lead, Pb	mg/kg	1	95	89.9	80 - 120	105
	Zinc, Zn	mg/kg	2	270	273	80 - 120	101

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB313992.002	TRH C10-C14	mg/kg	20	42	40	60 - 140	105
	TRH C15-C28	mg/kg	45	<45	40	60 - 140	79
	TRH C29-C36	mg/kg	45	<45	40	60 - 140	89
	TRH F Bands						
	TRH >C10-C16	mg/kg	25	42	40	60 - 140	104
	TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	85
	TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	88

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB313998.002	Monocyclic	Benzene	mg/kg	0.1	3.0	5	60 - 140	61
	Aromatic	Toluene	mg/kg	0.1	3.6	5	60 - 140	72
		Ethylbenzene	mg/kg	0.1	3.8	5	60 - 140	76
		m/p-xylene	mg/kg	0.2	7.7	10	60 - 140	77
		o-xylene	mg/kg	0.1	3.9	5	60 - 140	77
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.2	10	70 - 130
	d8-toluene (Surrogate)	mg/kg	-	7.6	10	70 - 130	76	
	Bromofluorobenzene (Surrogate)	mg/kg	-	7.6	10	70 - 130	76	

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR
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Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Volatile Petroleum Hydrocarbons in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB313998.002	TRH C6-C10	mg/kg	25	60	92.5	60 - 140	65
	TRH C6-C9	mg/kg	20	52	80	60 - 140	65
	Surrogates						
	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.2	10	70 - 130	72
	Bromofluorobenzene (Surrogate)	mg/kg	-	7.6	10	70 - 130	76
VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	38	62.5	60 - 140	61

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE266094.001	LB314007.004	Mercury	mg/kg	0.05	0.26	<0.05	0.2	125

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE266094.001	LB313992.004	Naphthalene	mg/kg	0.1	4.2	<0.1	4	104
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Acenaphthylene	mg/kg	0.1	4.3	<0.1	4	107
		Acenaphthene	mg/kg	0.1	4.3	<0.1	4	108
		Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	4.0	<0.1	4	99
		Anthracene	mg/kg	0.1	5.1	<0.1	4	126
		Fluoranthene	mg/kg	0.1	4.0	<0.1	4	101
		Pyrene	mg/kg	0.1	4.4	<0.1	4	111
		Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
		Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(a)pyrene	mg/kg	0.1	3.3	<0.1	4	82
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	3.3	<0.2	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	3.4	<0.2	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	3.4	<0.3	-	-
		Total PAH (18)	mg/kg	0.8	34	<0.8	-	-
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	-	94
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	97
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	101

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE266094.001	LB314003.004	Arsenic, As	mg/kg	1	45	3	50	83
		Cadmium, Cd	mg/kg	0.3	41	<0.3	50	82
		Chromium, Cr	mg/kg	0.5	47	3.4	50	88
		Copper, Cu	mg/kg	0.5	45	1.4	50	88
		Nickel, Ni	mg/kg	0.5	45	1.6	50	86
		Lead, Pb	mg/kg	1	50	7	50	86
		Zinc, Zn	mg/kg	2	60	18	50	85

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE266094.001	LB313992.004	TRH C10-C14	mg/kg	20	46	<20	40	107
		TRH C15-C28	mg/kg	45	<45	<45	40	84
		TRH C29-C36	mg/kg	45	<45	<45	40	95
		TRH C37-C40	mg/kg	100	<100	<100	-	-
		TRH C10-C36 Total	mg/kg	110	<110	<110	-	-
		TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
	TRH F Bands	TRH >C10-C16	mg/kg	25	46	<25	40	108
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	46	<25	-	-
		TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	93
		TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE266094.001	LB313998.004	Monocyclic	Benzene	mg/kg	0.1	4.3	<0.1	5	87
			Toluene	mg/kg	0.1	4.3	<0.1	5	87
		Aromatic	Ethylbenzene	mg/kg	0.1	4.9	<0.1	5	97
			m/p-xylene	mg/kg	0.2	9.8	<0.2	10	98
			o-xylene	mg/kg	0.1	5.1	<0.1	5	101

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE266094.001	LB313998.004	Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.1	10.1	10
			d8-toluene (Surrogate)	mg/kg	-	10.7	10.2	10
			Bromofluorobenzene (Surrogate)	mg/kg	-	10.8	9.6	10
		Totals	Total BTEX*	mg/kg	0.6	<0.6	-	-
			Total Xylenes*	mg/kg	0.3	<0.3	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE266094.001	LB313998.004	TRH C6-C10	TRH C6-C10	mg/kg	25	70	<25	92.5
			TRH C6-C9	mg/kg	20	60	<20	80
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.1	10.1	10
			d8-toluene (Surrogate)	mg/kg	-	10.7	10.2	10
			Bromofluorobenzene (Surrogate)	mg/kg	-	10.8	9.6	-
		VPH F	Benzene (F0)	mg/kg	0.1	4.3	<0.1	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	42	<25	62.5
								60

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here : https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service .
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to relevant report comments for further information.

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CHAIN OF CUSTODY & ANALYSIS REQUEST

Page 1 of 2

SGS Environmental Services

Unit 16, 33 Maddox Street

Alexandria NSW 2015

Telephone No: (02) 85940400

Facsimile No: (02) 85940499

Email: au.samplereceipt.sydney@sgs.com

Company Name: Hunter Environmental Consulting

Address: 40 Glenwood Drive, Thornton NSW 2322

Contact Name:

Project Name/No: F0208 (Seaham)

Purchase Order No: HFC0407

Results Required By: STD

Telephone:

Facsimile:

Email Results: results@hunterenviro.com.au

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	EC & pH	CL10	HOLD											
BHR1 0.1-0.2	28/5	1		X			X	X												
BH1 0.0-0.3		2		X			X	X												
BH6 0.1-0.2		3		X			X	X												
BH7 0.1-0.2		4		X			X	X												
BH8 0.1-0.2						2			X											
BH9 0.1-0.2				X																
BH10 0.1-0.2		5		X			X	X												
BH11 0.1-0.2				X					X											
BH12 0.1-0.2		6		X			X	X												
BH13 0.1-0.2		7		X			X	X												
BH14 0.1-0.2		8		X			X	X												
BH15 0.1-0.2	29/5	9		X			X	X												

SGS EHS Sydney COC
SE266094


Relinquished By: [Redacted]
 Relinquished By:
 Samples Intact: Yes/No

Date/Time: 30/05/2024
 Date/Time:
 Temperature: Ambient / Chilled

Received By: [Redacted]
 Received By:
 Sample Cooler Sealed: Yes/ No

Date/Time: 31/05/24 @ 10:40
 Date/Time:
 Laboratory Quotation No:

Comments:



CHAIN OF CUSTODY & ANALYSIS REQUEST

Page 2 of 2

SGS Environmental Services

Unit 16, 33 Maddox Street

Alexandria NSW 2015

Telephone No: (02) 85940400

Facsimile No: (02) 85940499

Email: au.samplereceipt.sydney@sgs.com

Company Name: Hunter Environmental Consulting

Address: 40 Glenwood Drive, Thornton NSW 2322

Contact Name:

Project Name/No: E0208 (Seaham)

Purchase Order No: HEC0407

Results Required By: STD

Telephone:

Facsimile:

Email Results: results@hunterenviro.com.au

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	EC & pH	CL10	HOLD										
BH16 0.1-0.2	29/5	10		X		1	X	X											
BH17 0.1-0.2		11					X	X											
BH18 0.1-0.2		12					X	X											
BH19 0.0-0.1									X										
BH20 0.1-0.2		13					X	X											
BH21 0.1-0.2		14					X	X											
BH22 0.0-0.1		15					X	X											
BH22 0.1-0.2																			
BH22 0.2-0.25																			

Relinquished By:

Date/Time:

30/5/24

Received By:

Date/Time

31/05/24 @ 10.40

Relinquished By:

Date/Time:

Received By:

Date/Time

Samples Intact: Yes/ No

Temperature: Ambient / Chilled

Sample Cooler Sealed: Yes/ No

Laboratory Quotation No:

Comments: