



## Environmental Site Assessment

# Tenambit Community Centre

Report Ref: E0126-ESA-001-Rev0

Written by: Gilles Renda (Environmental Scientist)

Reviewed by: Jake Duck (Environmental Scientist)

Email: [office@hunterenviro.com.au](mailto:office@hunterenviro.com.au)

Client: Maitland City Council



3 October 2023

**Prepared for**

**Maitland City Council**

Ph: 0499 968 861

Email: [Malcolm.Adrien@maitland.nsw.gov.au](mailto:Malcolm.Adrien@maitland.nsw.gov.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](mailto:office@hunterenviro.com.au)

Web: [hunterenviro.com.au](http://hunterenviro.com.au)

**Project Details**

<b>Site Address:</b>	Tenambit Community Centre
<b>Project Type:</b>	Environmental Site Assessment

Project no	Report type	Report no
E0126	ESA	001

**Report Register**

Revision Number	Reported By	Reviewed By	Date
Rev0	GR	JD	3/10/2023

We confirm that the following report has been produced for Maitland City Council, based on the described methods and conditions within.

For and on behalf of Hunter Environmental Consulting,



**Jake Duck**

Environmental Scientist

## Table of Contents

1	Introduction .....	4
1.1	Background .....	4
2	Site Works .....	4
2.1	Soil Sampling & Contaminants of Concern .....	4
3	Quality Assurance / Quality Control.....	4
4	Results .....	5
4.1	Assessment Criteria .....	5
4.2	Targeted Sampling Results & Interpretation .....	6
5	Discussion & Conclusion.....	6
6	Report Limitations.....	6
	References.....	7

### Annex List:

- Annex A** Site Features Plan
- Annex B** Soil Sample Logs
- Annex C** Tabulated Soil Results
- Annex D** Laboratory Reports

## **1 Introduction**

### **1.1 Background**

Hunter Environmental Consulting (HEC) was engaged by Maitland City Council to complete an Environmental Site Assessment (ESA) to investigate contamination status of the site to inform consideration of environmental liabilities and if required, recommendations for further assessment and/or remediation at Tenambit Community Centre (here-in referred to as the Site).

## **2 Site Works**

### **2.1 Soil Sampling & Contaminants of Concern**

Collection of a total of four (4) soil samples (including one (1) duplicate sample for QA/QC purposes) from four (4) borehole locations to a maximum depth of 0.2m BGL for determining its suitability for the proposed land use (HIL-C). Samples were analysed for the presence of the following contaminants of potential concern (CoPC);

- Benzene, Toluene, Ethyl-Benzene & Xylene (BTEX)
- Total Recoverable Hydrocarbons (TRH)
- Polycyclic Aromatic Hydrocarbons (PAH)
- Heavy metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
- Organochlorine Pesticides (OCP) & Organophosphorus Pesticides (OPP)
- Polychlorinated Biphenyls (PCB)

A Site features plan including sampling locations is presented in Figure 1 of **Annex A**.

## **3 Quality Assurance / Quality Control**

Quality assurance measures for sampling within this assessment were adopted to provide confidence in the analytical results to support determinations on material categorization 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 are broadly defined within the following categories:

1. Sample collection, storage transport and analysis
2. Laboratory quality control procedures and results
3. The occurrence of apparently unusual and anomalous results

Quality Assurance comprised of the following;

- Collection of a duplicate sample at a rate of 1 per 20 samples
- One (1) rinsate solution per day

Soil sampling was completed by a suitably qualified scientist experienced in contaminated site assessments. All field equipment was decontaminated between sampling locations using a triple rinse

procedure by washing with an approximately 5% solution of DeCon 90 phosphate-free detergent, followed by tap water and finally rinsed with deionized water between sampling locations. Disposable nitrile gloves were worn during sampling and changed between locations. Samples were stored in jars provided by the NATA accredited laboratory sub-contracted to complete analysis (SGS) and were specific to targeted analytes. Samples were labelled with unique identifiers referencing the sampling location, depth and date of sampling then stored on ice during delivery to the Laboratory. Samples were transported under chain of custody to the laboratory and then analysed according to NATA accredited test methods.

Assessment of laboratory quality control is presented within the laboratory reports presented as **Annex D**.

Results of the RPD analysis between primary and duplicate samples were all within allowable limits.

The results of the Rinsate sample analysis were all found to be below the laboratory Limit of Reporting (LOR) for all analytes, indicating field decontamination procedures were adequate.

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.

## 4 Results

### 4.1 Assessment Criteria

Analytical data were screened against relevant Tier 1 Trigger Values for Recreation / Open space land use, as defined or referenced within *Schedule B1* of the *NEPM 2013* (National Environmental Protection Council (NEPC), 2013). Specifically:

1. Health Investigation Levels (HILs) for Public Open Space land uses (HIL-C for heavy metals, PAHs and PCBs were derived from Table 1A (1))
2. Health Screening Levels for silt/clay-based soils in a Public Open Space land use (HSL-C) for TRH, BTEX and Naphthalene, were derived from *CRC Care Technical Report no. 10 – Health screening levels for petroleum hydrocarbons in soil and groundwater - Summary* (Friebel & Nadebaum, 2011)
3. The CRC CARE (2011) assessment criteria for direct contact with petroleum hydrocarbons by future receptors
4. The NEPM (2013) ecological investigation levels (EILs) for inorganics to assess risks to ecological receptors
5. The NEPM (2013) ecological screening levels for coarse soil for hydrocarbon compounds to assess risks to ecological receptors

HIL and HSL assessment criteria address potential health risks to receptors associated with potential contamination.

## 4.2 Targeted Sampling Results & Interpretation

A tabulated assessment of analytical results against assessment criteria is presented in **Table 1-2** within **Annex C** with laboratory reports presented in **Annex D**.

The results of the analysis of the four (4) primary soil samples indicate that:

- All analytes were below the Limit of Reporting (LOR) for BTEX, OC/OP Pesticides and PCBs;
- All heavy metals results were reported below the adopted site assessment criteria (SAC);
- All samples were reported with detections for TRH F3, and F2 in one sample (BH2), however all samples were acceptable under the adopted SAC;
- All samples were reported with detections for PAH (Benzo(a)Pyrene/B(a)P TEQs), however all samples were acceptable under the adopted SAC.

All samples returned results which were acceptable under the adopted SAC for the proposed land use criteria (HIL/HSL-C).

## 5 Discussion & Conclusion

HEC was engaged by Maitland City Council to complete an Environmental Site Assessment (ESA) to investigate contamination status of the site to inform consideration of environmental liabilities and if required, recommendations for further assessment and/or remediation at Tenambit Community Centre (here-in referred to as the Site).

All samples collected as part of this investigation returned results which were acceptable under the adopted SAC for the proposed land use criteria (HIL/HSL-C) for public open spaces/recreation. Based on the analytical results from the intrusive investigation, it is unlikely that a positive source receptor linkage exists at the Site for any CoPC in which may impact sensitive human or environmental receptors. HEC considers the site suitable for the proposed redevelopment.

## 6 Report Limitations

HEC considers that the objectives of the original scope as presented in quote EQ03185 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.

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

For and on behalf of

Hunter Environmental Consulting

**Reported by:**

**Reviewed by:**



**Gilles Renda**

*Environmental Scientist / Sustainability Advisor*  
Bachelor of Science, Geology



**Jake Duck**

*Environmental Scientist*  
Bachelor of Environmental Science and  
Management

## References

Friebel, E., & Nadebaum, P. (2011). *Health screening levels for petroleum hydrocarbons in soil and groundwater. Summary*. Adelaide: CRC CARE Technical Report no. 10, CRC for Contamination Assessment and Remediation of the Environment.

National Environmental Protection Council (NEPC). (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999*. Canberra: Office of Parliamentary Counsel.



# Annex A



# Borehole Location Plan



\*Image taken from NearMaps

**Figure 1** – Overhead image of the Corner of Tyrell Street and Kenneth Street



# Annex B



**Hunter Civilab**  
 Unit 3, 62 Sandringham Avenue Thornton NSW 2322  
 Phone: (02) 4966 1844

**Geotechnical Log - Borehole**

**BH1**

UTM :	Driller Rig : Ute Mounted Drill Rig	Job Number : G0237
Easting (m) : 0.0	Driller Supplier : Hunter Civilab	Client : Maitland City Council
Northing (m) : 0.0	Logged By : JR	Project : Geotechnical Investigation
Ground Elevation : Not Surveyed	Reviewed By : KS	Location : Tyrell Street & Kenneth Street, Tenambit NSW
Total Depth : 1.1 m BGL	Date : 12/07/2023	Loc Comment :

Water	DCP graph	PSP	Testing	Samples	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture	Consistency/Density	Soil Origin	Remarks
	3				0.2		SM	Sandy SILT, low plasticity, dark grey / brown, fine grained sand, (with organics).	w < PL	VS	Topsoil	
	5											
	7						CI-CH	Silty CLAY, medium to high plasticity, pale brown / grey / yellow, trace fine grained sand.		St	Residual	
	8											
	6		PP: 300-320 kPa		0.5							
	3											
	4											
	4											
	3											
	7/50mm											
	Refusal (D/Bounce)		PP: 300 kPa		1		CL	Sandy CLAY, low plasticity, pale brown / white / grey, fine grained sand, (extremely weathered sandstone material).		St-VSt	Residual	
								<b>BH1 refusal at 1.1 m (On Sandstone)</b>				
					1.5							
					2							
					2.5							





**Hunter Civilab**

Unit 3, 62 Sandringham Avenue Thornton NSW 2322  
 Phone: (02) 4966 1844

**Geotechnical Log - Borehole**

**BH3**

UTM :	Driller Rig : Ute Mounted Drill Rig	Job Number : G0237
Easting (m) : 0.0	Driller Supplier : Hunter Civilab	Client : Maitland City Council
Northing (m) : 0.0	Logged By : JR	Project : Geotechnical Investigation
Ground Elevation : Not Surveyed	Reviewed By : KS	Location : Tyrell Street & Kenneth Street, Tenambit NSW
Total Depth : 1.4 m BGL	Date : 12/07/2023	Loc Comment :

Water	DCP graph	PSP	Testing	Samples	Depth (m)	Graphic Log Classification Code	Material Description	Moisture	Consistency/Density	Soil Origin	Remarks
	0				0.2	SM	Sandy SILT, low plasticity, dark grey / brown, fine grained sand, (with organics).	w > PL	VS	Topsoil	
	0				0.2	SM	FILL: silty SAND, fine to medium grained, dark grey.	W	VL	Fill	
	3				0.6	CI-CH	Silty CLAY, medium to high plasticity, pale brown / grey / yellow, trace fine grained sand.	w > PL	F-St	Residual	
	1		PP: 100-120 kPa		1.0	CI-CH	Sandy CLAY, medium to high plasticity, pale brown / yellow, fine grained sand, (trace silt).			Residual	
	3		PP: 100-120 kPa		1.3	CL	Sandy CLAY, low plasticity, pale brown / yellow / white, fine grained sand, (extremely weathered sandstone material).	w < PL	St	Residual	
	2						<b>BH3 refusal at 1.4 m (On Sandstone)</b>				
	3										
	4/50mm										
	Refusal (D/Bounce)										



**Hunter Civilab**

Unit 3, 62 Sandringham Avenue Thornton NSW 2322

Phone: (02) 4966 1844

**Geotechnical Log - Borehole**

**BH4**


UTM :	Driller Rig : Ute Mounted Drill Rig	Job Number : G0237
Easting (m) : 0.0	Driller Supplier : Hunter Civilab	Client : Maitland City Council
Northing (m) : 0.0	Logged By : JR	Project : Geotechnical Investigation
Ground Elevation : Not Surveyed	Reviewed By : KS	Location : Tyrell Street & Kenneth Street, Tenambit NSW
Total Depth : 2.6 m BGL	Date : 12/07/2023	Loc Comment :

Water	DCP graph	PSP	Testing	Samples	Depth (m)	Graphic Log Classification Code	Material Description	Moisture	Consistency/Density	Soil Origin	Remarks
	2					SM	Sandy SILT, low plasticity, dark grey / brown, fine grained sand, (with organics).	w < PL	VS	Topsoil	
	6				0.2	CI-CH	Silty CLAY, medium to high plasticity, pale grey / brown / orange, trace fine grained sand.		St-VSt	Residual	
	21										
	13										
	17										
	8		PP: 350 kPa		0.5						
	9										
	9			Undisturbed: U50							
	12										
	20				0.9	SM	Silty SAND, fine grained, pale grey / white, with fine sized gravel, (extremely weathered sandstone material)	D	D	Residual	
	Refusal				1						
					1.5						
					2						
					2.5	CL	Sandy CLAY, low plasticity, pale brown / orange / yellow, fine to medium grained sand, (extremely weathered sandstone material).	w < PL	St	Residual	
					2.5		<b>BH4 refusal at 2.6 m (On Sandstone)</b>				



# Annex C

Soil Screening Criteria


	Metals								TRH NEPM (2013)							BTEX				PAH					
	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury	TRH C6-C10 Fraction	TRH C6-C10 minus BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 - Naphthalene (F2)	TRH >C16-C34 (F3)	TRH >C34-C40 (F4)	Naphthalene	Benzene	Toluene	Ethylbenzene	Xylene Total	Naphthalene	Benzo(a)pyrene	Carcinogenic PAHs, BaP TEQ <LOR=0	Carcinogenic PAHs, BaP TEQ <LOR=LOR	Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	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	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	1	0.3	0.5	0.5	1	0.5	2	0.05	25	25	25	25	90	120	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.2	0.3	0.2	0.8
HIL C (NEPM 2013)	300	90	300	17000	600	1200	30000	80														3	3	3	300
HSL C - Soil Vapour Sand 0 - <1m (NEPM 2013)										NL	NL				NL	NL	NL	NL	NL						
HSL C - Soil Vapour Sand 1 - <2m (NEPM 2013)										NL	NL				NL	NL	NL	NL	NL						
HSL C - Soil Vapour Sand 2 - <4m (NEPM 2013)										NL	NL				NL	NL	NL	NL	NL						
HSL C - Soil Vapour Sand 4m+ (NEPM 2013)										NL	NL				NL	NL	NL	NL	NL						
HSL C - Soil Vapour Silt 0 - <1m (NEPM 2013)										NL	NL				NL	NL	NL	NL	NL						
HSL C - Soil Vapour Silt 1 - <2m (NEPM 2013)										NL	NL				NL	NL	NL	NL	NL						
HSL C - Soil Vapour Silt 2 - <4m (NEPM 2013)										NL	NL				NL	NL	NL	NL	NL						
HSL C - Soil Vapour Silt 4m+ (NEPM 2013)										NL	NL				NL	NL	NL	NL	NL						
HSL C - Direct Contact (CRC Care 2011)									5,100		3,800		5,300	7,400	1,900	120	18,000	5,300	15,000	1,900					
Intrusive Maintenance Worker - Direct Contact (CRC Care 2011)									82,000		62,000		85,000	120,000	29,000	1,100	120,000	85,000	130,000	29,000					
EILs (NEPM 2013)	100				1100										170					170					
ESLs - Fine (NEPM 2013)										180		120	1300	5600		65	105	125	105		1.4				
Management Limits - Fine Soil (NEPM 2013)									800		1,000		3,500	10,000											

Sample ID	Sampled Date	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury	TRH C6-C10 Fraction	TRH C6-C10 minus BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 - Naphthalene (F2)	TRH >C16-C34 (F3)	TRH >C34-C40 (F4)	Naphthalene	Benzene	Toluene	Ethylbenzene	Xylene Total	Naphthalene	Benzo(a)pyrene	Carcinogenic PAHs, BaP TEQ <LOR=0	Carcinogenic PAHs, BaP TEQ <LOR=LOR	Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	Total PAH
BH1_0.1-0.2	27/09/2023	5	<0.3	9.6	6.9	18	4.6	55	<0.05	<25	<25	<25	<25	120	<120	<0.1	<0.1	<0.1	<0.1	<0.3	<0.1	1	1.4	1.4	1.4	11
BH2_0.1-0.2	27/09/2023	10	<0.3	12	9.1	10	4.1	27	<0.05	<25	<25	37	37	210	<120	<0.1	<0.1	<0.1	<0.1	<0.3	<0.1	0.3	0.4	0.5	0.4	2.9
BH3_0.1-0.2	27/09/2023	4	<0.3	8.8	6.3	14	5.5	46	<0.05	<25	<25	<25	<25	150	<120	<0.1	<0.1	<0.1	<0.1	<0.3	<0.1	0.2	0.2	0.3	0.3	1.8
BH4_0.1-0.2	27/09/2023	2	<0.3	18	12	5	13	89	<0.05	<25	<25	<25	<25	190	<120	<0.1	<0.1	<0.1	<0.1	<0.3	<0.1	0.1	<0.2	<0.3	0.2	1.7
Dup1	27/09/2023	5	<0.3	8.6	7.1	18	3.3	54	<0.05	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

Statistical Summary		Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury	TRH C6-C10 Fraction	TRH C6-C10 minus BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 - Naphthalene (F2)	TRH >C16-C34 (F3)	TRH >C34-C40 (F4)	Naphthalene	Benzene	Toluene	Ethylbenzene	Xylene Total	Naphthalene	Benzo(a)pyrene	Carcinogenic PAHs, BaP TEQ <LOR=0	Carcinogenic PAHs, BaP TEQ <LOR=LOR	Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	Total PAH	
Number of Results		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
Number of Detects		5	0	5	5	5	5	5	0	0	0	1	1	4	0	0	0	0	0	0	0	0	4	3	3	4	4
Minimum Detect		2	0	8.6	6.3	5	3.3	27	0	0	0	37	37	120	0	0	0	0	0	0	0	0.1	0.2	0.3	0.2	1.7	
Maximum Detect		10	0	18	12	18	13	89	0	0	0	37	37	210	0	0	0	0	0	0	0	1	1.4	1.4	1.4	11	
Average Concentration		5	-	11	8	13	6.10	54	-	-	-	37	37	168	-	-	-	-	-	-	-	-	-	-	-	-	
Number of Guideline Exceedances		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	



Soil Screening Criteria

	OCP														OPP	PCB
	Aldrin	o,p'-DDE	o,p'-DDD	o,p'-DDT	Gamma Chlordane	Alpha Chlordane	Dieldrin	Alpha Endosulfan	Beta Endosulfan	Endrin	Heptachlor	Hexachlorobenzene (HCB)	Methoxychlor	Toxaphene	Chlorpyrifos (Chlorpyrifos Ethyl)	Total PCBs (Arochlors)
	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	mg/kg
Limit of Reporting	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	1	0.2	1
HIL C (NEPM 2013)	10	400	400	400	70	70	10	340	340	20	10	10	400	30	250	1
HSL C - Direct Contact (CRC Care 2011)																
Intrusive Maintenance Worker - Direct Contact (CRC Care 2011)																
EILs (NEPM 2013)				180												
ESLs - Coarse/Fine (NEPM 2013)																


Sample ID	Sampled Date	Aldrin	o,p'-DDE	o,p'-DDD	o,p'-DDT	Gamma Chlordane	Alpha Chlordane	Dieldrin	Alpha Endosulfan	Beta Endosulfan	Endrin	Heptachlor	Hexachlorobenzene (HCB)	Methoxychlor	Toxaphene	Chlorpyrifos (Chlorpyrifos Ethyl)	Total PCBs (Arochlors)
BH1_0.1-0.2	27/09/2023	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	N.A.	<0.2	<1
BH2_0.1-0.2	27/09/2023	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	N.A.	<0.2	<1
BH3_0.1-0.2	27/09/2023	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	N.A.	<0.2	<1
BH4_0.1-0.2	27/09/2023	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	N.A.	<0.2	<1
Dup1	27/09/2023	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

Statistical Summary		Aldrin	o,p'-DDE	o,p'-DDD	o,p'-DDT	Gamma Chlordane	Alpha Chlordane	Dieldrin	Alpha Endosulfan	Beta Endosulfan	Endrin	Heptachlor	Hexachlorobenzene (HCB)	Methoxychlor	Toxaphene	Chlorpyrifos (Chlorpyrifos Ethyl)	Total PCBs (Arochlors)
Number of Results		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Number of Detects		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Detect		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maximum Detect		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Average Concentration		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Number of Guideline Exceedances		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note:

- <sup>(1)</sup> The NEPM presents a cumulative HIL for DDD, DDE and DDT (240 mg/kg). Concentrations for each of these compounds are
- <sup>(2)</sup> The NEPM presents a cumulative HIL for Aldrin and Dieldrin (6 mg/kg). Concentrations for each of these compounds are
- <sup>(3)</sup> The NEPM presents one HIL for Endosulfan (270 mg/kg). Concentrations for Alpha Endosulfan and Beta Endosulfan are

## Soil Screening Criteria


	LOR	Unit	Primary Sample	QA Sample	RPD
			BH1_0.1-0.2	Dup1	
<b>Metals</b>					
Arsenic	1	mg/kg	5	5	0.0
Cadmium	0.3	mg/kg	<0.3	<0.3	0.0
Chromium	0.5	mg/kg	9.6	8.6	11.0
Copper	0.5	mg/kg	6.9	7.1	-2.9
Lead	1	mg/kg	18	18	0.0
Nickel	0.5	mg/kg	4.6	3.3	32.9
Zinc	2	mg/kg	55	54	1.8
Mercury	0.05	mg/kg	<0.05	<0.05	0.0

### Notes

RPD = Relative Percentage Difference.

RPD assessment criteria were adopted in general accordance with NEPM Schedule B3 Section 3.5 (NEPC 2013). RPDs where both primary and duplicate results were < 2.5 times the LOR were not considered. RPDs where primary and/or duplicate results were >2.5 times the LOR were assessed based on a threshold of +/- 30%. Exceedence of this threshold triggered consideration of associated data quality.

Soil Screening Criteria

	Metals							
	Arseenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
Limit of Reporting	1	0.1	1	1	1	1	5	0.0001

Sample ID	Sampled Date	Arseenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury
RW1	27/09/2023	<1	<0.1	<1	<1	<1	<1	<5	<0.0001

Statistical Summary									
Number of Results	1	1	1	1	1	1	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0
Minimum Detect	0	0	0	0	0	0	0	0	0
Maximum Detect	0	0	0	0	0	0	0	0	0
Average Concentration	-	-	-	-	-	-	-	-	-
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0



# Annex D

CLIENT DETAILS

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

Telephone 0460 664 225  
 Facsimile (Not specified)  
 Email gr@hunterenviro.com.au

Project **E0126 (MCC)**  
 Order Number **HEC0248**  
 Samples 6

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 **SE254473 R0**  
 Date Received 28/9/2023  
 Date Reported 29/9/2023

COMMENTS

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

SIGNATORIES



**Akheeque BENIAMEEN**  
 Chemist



**Dong LIANG**  
 Metals/Inorganics Team Leader



**Huong CRAWFORD**  
 Production Manager



**Shane MCDERMOTT**  
 Inorganic/Metals Chemist

VOC's in Soil [AN433] Tested: 28/9/2023

PARAMETER	UOM	LOR	BH1_0.1-0.2	BH2_0.1-0.2	BH3_0.1-0.2	BH4_0.1-0.2
			SOIL - 27/9/2023 SE254473.001	SOIL - 27/9/2023 SE254473.002	SOIL - 27/9/2023 SE254473.003	SOIL - 27/9/2023 SE254473.004
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	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
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 28/9/2023

PARAMETER	UOM	LOR	BH1_0.1-0.2	BH2_0.1-0.2	BH3_0.1-0.2	BH4_0.1-0.2
			SOIL - 27/9/2023 SE254473.001	SOIL - 27/9/2023 SE254473.002	SOIL - 27/9/2023 SE254473.003	SOIL - 27/9/2023 SE254473.004
TRH C6-C9	mg/kg	20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 28/9/2023

PARAMETER	UOM	LOR	BH1_0.1-0.2	BH2_0.1-0.2	BH3_0.1-0.2	BH4_0.1-0.2
			SOIL - 27/9/2023 SE254473.001	SOIL - 27/9/2023 SE254473.002	SOIL - 27/9/2023 SE254473.003	SOIL - 27/9/2023 SE254473.004
TRH C10-C14	mg/kg	20	<20	<b>21</b>	<20	<20
TRH C15-C28	mg/kg	45	<b>68</b>	<b>170</b>	<b>94</b>	<b>120</b>
TRH C29-C36	mg/kg	45	<b>71</b>	<b>81</b>	<b>80</b>	<b>100</b>
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<b>37</b>	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<b>37</b>	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<b>120</b>	<b>210</b>	<b>150</b>	<b>190</b>
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<b>140</b>	<b>270</b>	<b>170</b>	<b>220</b>
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<b>240</b>	<210	<210



PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 28/9/2023

PARAMETER	UOM	LOR	BH1_0.1-0.2	BH2_0.1-0.2	BH3_0.1-0.2	BH4_0.1-0.2
			SOIL - 27/9/2023 SE254473.001	SOIL - 27/9/2023 SE254473.002	SOIL - 27/9/2023 SE254473.003	SOIL - 27/9/2023 SE254473.004
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<b>0.1</b>	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<b>0.8</b>	<b>0.2</b>	<b>0.1</b>	<b>0.2</b>
Anthracene	mg/kg	0.1	<b>0.2</b>	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<b>2.0</b>	<b>0.6</b>	<b>0.3</b>	<b>0.4</b>
Pyrene	mg/kg	0.1	<b>2.0</b>	<b>0.6</b>	<b>0.3</b>	<b>0.3</b>
Benzo(a)anthracene	mg/kg	0.1	<b>0.7</b>	<b>0.2</b>	<b>0.1</b>	<b>0.1</b>
Chrysene	mg/kg	0.1	<b>0.8</b>	<b>0.2</b>	<b>0.1</b>	<b>0.1</b>
Benzo(b&j)fluoranthene	mg/kg	0.1	<b>1.1</b>	<b>0.3</b>	<b>0.2</b>	<b>0.2</b>
Benzo(k)fluoranthene	mg/kg	0.1	<b>0.4</b>	<b>0.1</b>	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<b>1.0</b>	<b>0.3</b>	<b>0.2</b>	<b>0.1</b>
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<b>0.7</b>	<b>0.2</b>	<b>0.1</b>	<b>0.1</b>
Dibenzo(ah)anthracene	mg/kg	0.1	<b>0.1</b>	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<b>0.7</b>	<b>0.2</b>	<b>0.1</b>	<b>0.1</b>
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	<b>1.4</b>	<b>0.4</b>	<b>0.2</b>	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<b>1.4</b>	<b>0.5</b>	<b>0.3</b>	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<b>1.4</b>	<b>0.4</b>	<b>0.3</b>	<b>0.2</b>
Total PAH (18)	mg/kg	0.8	<b>11</b>	<b>2.9</b>	<b>1.8</b>	<b>1.7</b>
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<b>11</b>	<b>2.9</b>	<b>1.8</b>	<b>1.7</b>

OC Pesticides in Soil [AN420] Tested: 28/9/2023

PARAMETER	UOM	LOR	BH1_0.1-0.2	BH2_0.1-0.2	BH3_0.1-0.2	BH4_0.1-0.2
			SOIL - 27/9/2023 SE254473.001	SOIL - 27/9/2023 SE254473.002	SOIL - 27/9/2023 SE254473.003	SOIL - 27/9/2023 SE254473.004
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE*	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD*	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT*	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1
Total OC VIC EPA	mg/kg	1	<1	<1	<1	<1

OP Pesticides in Soil [AN420] Tested: 28/9/2023

PARAMETER	UOM	LOR	BH1_0.1-0.2	BH2_0.1-0.2	BH3_0.1-0.2	BH4_0.1-0.2
			SOIL - 27/9/2023 SE254473.001	SOIL - 27/9/2023 SE254473.002	SOIL - 27/9/2023 SE254473.003	SOIL - 27/9/2023 SE254473.004
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7

PCBs in Soil [AN420] Tested: 28/9/2023

PARAMETER	UOM	LOR	BH1_0.1-0.2	BH2_0.1-0.2	BH3_0.1-0.2	BH4_0.1-0.2
			SOIL - 27/9/2023 SE254473.001	SOIL - 27/9/2023 SE254473.002	SOIL - 27/9/2023 SE254473.003	SOIL - 27/9/2023 SE254473.004
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 28/9/2023

PARAMETER	UOM	LOR	BH1_0.1-0.2	BH2_0.1-0.2	BH3_0.1-0.2	BH4_0.1-0.2	Dup1
			SOIL - 27/9/2023 SE254473.001	SOIL - 27/9/2023 SE254473.002	SOIL - 27/9/2023 SE254473.003	SOIL - 27/9/2023 SE254473.004	SOIL - 27/9/2023 SE254473.005
Arsenic, As	mg/kg	1	<b>5</b>	<b>10</b>	<b>4</b>	<b>2</b>	<b>5</b>
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	<b>9.6</b>	<b>12</b>	<b>8.8</b>	<b>18</b>	<b>8.6</b>
Copper, Cu	mg/kg	0.5	<b>6.9</b>	<b>9.1</b>	<b>6.3</b>	<b>12</b>	<b>7.1</b>
Lead, Pb	mg/kg	1	<b>18</b>	<b>10</b>	<b>14</b>	<b>5</b>	<b>18</b>
Nickel, Ni	mg/kg	0.5	<b>4.6</b>	<b>4.1</b>	<b>5.5</b>	<b>13</b>	<b>3.3</b>
Zinc, Zn	mg/kg	2	<b>55</b>	<b>27</b>	<b>46</b>	<b>89</b>	<b>54</b>

Mercury in Soil [AN312] Tested: 28/9/2023

			BH1_0.1-0.2	BH2_0.1-0.2	BH3_0.1-0.2	BH4_0.1-0.2	Dup1
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			27/9/2023	27/9/2023	27/9/2023	27/9/2023	27/9/2023
PARAMETER	UOM	LOR	SE254473.001	SE254473.002	SE254473.003	SE254473.004	SE254473.005
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 28/9/2023

			BH1_0.1-0.2	BH2_0.1-0.2	BH3_0.1-0.2	BH4_0.1-0.2	Dup1
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			27/9/2023	27/9/2023	27/9/2023	27/9/2023	27/9/2023
PARAMETER	UOM	LOR	SE254473.001	SE254473.002	SE254473.003	SE254473.004	SE254473.005
% Moisture	%w/w	1	<b>6.8</b>	<b>2.4</b>	<b>19.3</b>	<b>6.1</b>	<b>6.9</b>

Trace Metals (Total) in Water by ICPMS [AN022/AN318] Tested: 29/9/2023

			RW1
			WATER
			-
			27/9/2023
PARAMETER	UOM	LOR	SE254473.006
Total Arsenic	µg/L	1	<1
Total Cadmium	µg/L	0.1	<0.1
Total Chromium	µg/L	1	<1
Total Copper	µg/L	1	<1
Total Nickel	µg/L	1	<1
Total Lead	µg/L	1	<1
Total Zinc	µg/L	5	<5



Mercury (total) in Water [AN311(Perth) /AN312] Tested: 29/9/2023

			RW1
			WATER
			-
			27/9/2023
PARAMETER	UOM	LOR	SE254473.006
Total Mercury	mg/L	0.0001	<0.0001

METHOD

METHODOLOGY SUMMARY

- AN002** The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
- AN022/AN318** Following acid digestion of un filtered sample, determination of elements at trace level in waters by ICP-MS technique, referenced to USEPA 6020B and USEPA 200.8 (5.4).
- AN022** The water sample is digested with Nitric Acid and made up to the original volume similar to APHA3030E.
- 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.
- AN311(Perth) /AN312** Mercury by Cold Vapour AAS in Waters: Mercury ions taken from unfiltered sample are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
- AN312** Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
- 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** SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
- AN433** VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

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:

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

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

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

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

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law .

This report must not be reproduced, except in full.

### CLIENT DETAILS

Contact: Gilles Renda  
 Client: HUNTER ENVIRONMENTAL CONSULTING PTY LTD  
 Address: PO BOX 3127  
 THORNTON NSW 2322

Telephone: 0460 664 225  
 Facsimile: (Not specified)  
 Email: gr@hunterenviro.com.au

Project: **E0126 (MCC)**  
 Order Number: **HEC0248**  
 Samples: 6

### 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: **SE254473 R0**  
 Date Received: 28 Sep 2023  
 Date Reported: 29 Sep 2023

### 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:

Duplicate	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	11 items
	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item

### SAMPLE SUMMARY

Sample counts by matrix	5 Soil, 1 Water	Type of documentation received	COC
Date documentation received	28/9/2023	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	15.5°C
Sample container provider	SGS	Turnaround time requested	Next Day
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 sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

### Mercury (total) In Water

Method: ME-(AU)-[ENV]AN311(Perth) /AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RW1	SE254473.006	LB292163	27 Sep 2023	28 Sep 2023	25 Oct 2023	29 Sep 2023	25 Oct 2023	29 Sep 2023

### Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.1-0.2	SE254473.001	LB292059	27 Sep 2023	28 Sep 2023	25 Oct 2023	28 Sep 2023	25 Oct 2023	29 Sep 2023
BH2_0.1-0.2	SE254473.002	LB292059	27 Sep 2023	28 Sep 2023	25 Oct 2023	28 Sep 2023	25 Oct 2023	29 Sep 2023
BH3_0.1-0.2	SE254473.003	LB292059	27 Sep 2023	28 Sep 2023	25 Oct 2023	28 Sep 2023	25 Oct 2023	29 Sep 2023
BH4_0.1-0.2	SE254473.004	LB292059	27 Sep 2023	28 Sep 2023	25 Oct 2023	28 Sep 2023	25 Oct 2023	29 Sep 2023
Dup1	SE254473.005	LB292059	27 Sep 2023	28 Sep 2023	25 Oct 2023	28 Sep 2023	25 Oct 2023	29 Sep 2023

### Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.1-0.2	SE254473.001	LB292053	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	03 Oct 2023	29 Sep 2023
BH2_0.1-0.2	SE254473.002	LB292053	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	03 Oct 2023	29 Sep 2023
BH3_0.1-0.2	SE254473.003	LB292053	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	03 Oct 2023	29 Sep 2023
BH4_0.1-0.2	SE254473.004	LB292053	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	03 Oct 2023	29 Sep 2023
Dup1	SE254473.005	LB292053	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	03 Oct 2023	29 Sep 2023

### OC Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.1-0.2	SE254473.001	LB292051	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	07 Nov 2023	29 Sep 2023
BH2_0.1-0.2	SE254473.002	LB292051	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	07 Nov 2023	29 Sep 2023
BH3_0.1-0.2	SE254473.003	LB292051	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	07 Nov 2023	29 Sep 2023
BH4_0.1-0.2	SE254473.004	LB292051	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	07 Nov 2023	29 Sep 2023

### OP Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.1-0.2	SE254473.001	LB292051	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	07 Nov 2023	29 Sep 2023
BH2_0.1-0.2	SE254473.002	LB292051	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	07 Nov 2023	29 Sep 2023
BH3_0.1-0.2	SE254473.003	LB292051	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	07 Nov 2023	29 Sep 2023
BH4_0.1-0.2	SE254473.004	LB292051	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	07 Nov 2023	29 Sep 2023

### PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.1-0.2	SE254473.001	LB292051	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	07 Nov 2023	29 Sep 2023
BH2_0.1-0.2	SE254473.002	LB292051	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	07 Nov 2023	29 Sep 2023
BH3_0.1-0.2	SE254473.003	LB292051	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	07 Nov 2023	29 Sep 2023
BH4_0.1-0.2	SE254473.004	LB292051	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	07 Nov 2023	29 Sep 2023

### PCBs in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.1-0.2	SE254473.001	LB292051	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	07 Nov 2023	29 Sep 2023
BH2_0.1-0.2	SE254473.002	LB292051	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	07 Nov 2023	29 Sep 2023
BH3_0.1-0.2	SE254473.003	LB292051	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	07 Nov 2023	29 Sep 2023
BH4_0.1-0.2	SE254473.004	LB292051	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	07 Nov 2023	29 Sep 2023

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

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.1-0.2	SE254473.001	LB292058	27 Sep 2023	28 Sep 2023	25 Mar 2024	28 Sep 2023	25 Mar 2024	29 Sep 2023
BH2_0.1-0.2	SE254473.002	LB292058	27 Sep 2023	28 Sep 2023	25 Mar 2024	28 Sep 2023	25 Mar 2024	29 Sep 2023
BH3_0.1-0.2	SE254473.003	LB292058	27 Sep 2023	28 Sep 2023	25 Mar 2024	28 Sep 2023	25 Mar 2024	29 Sep 2023
BH4_0.1-0.2	SE254473.004	LB292058	27 Sep 2023	28 Sep 2023	25 Mar 2024	28 Sep 2023	25 Mar 2024	29 Sep 2023
Dup1	SE254473.005	LB292058	27 Sep 2023	28 Sep 2023	25 Mar 2024	28 Sep 2023	25 Mar 2024	29 Sep 2023

### Trace Metals (Total) in Water by ICPMS

Method: ME-(AU)-[ENV]AN022/AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RW1	SE254473.006	LB292153	27 Sep 2023	28 Sep 2023	25 Mar 2024	29 Sep 2023	25 Mar 2024	29 Sep 2023

### TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.1-0.2	SE254473.001	LB292051	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	07 Nov 2023	29 Sep 2023
BH2_0.1-0.2	SE254473.002	LB292051	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	07 Nov 2023	29 Sep 2023

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 sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

### TRH (Total Recoverable Hydrocarbons) in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3_0.1-0.2	SE254473.003	LB292051	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	07 Nov 2023	29 Sep 2023
BH4_0.1-0.2	SE254473.004	LB292051	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	07 Nov 2023	29 Sep 2023

### VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.1-0.2	SE254473.001	LB292052	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	11 Oct 2023	29 Sep 2023
BH2_0.1-0.2	SE254473.002	LB292052	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	11 Oct 2023	29 Sep 2023
BH3_0.1-0.2	SE254473.003	LB292052	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	11 Oct 2023	29 Sep 2023
BH4_0.1-0.2	SE254473.004	LB292052	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	11 Oct 2023	29 Sep 2023

### Volatile Petroleum Hydrocarbons in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.1-0.2	SE254473.001	LB292052	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	11 Oct 2023	29 Sep 2023
BH2_0.1-0.2	SE254473.002	LB292052	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	11 Oct 2023	29 Sep 2023
BH3_0.1-0.2	SE254473.003	LB292052	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	11 Oct 2023	29 Sep 2023
BH4_0.1-0.2	SE254473.004	LB292052	27 Sep 2023	28 Sep 2023	11 Oct 2023	28 Sep 2023	11 Oct 2023	29 Sep 2023

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.

**OC Pesticides in Soil**

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH1_0.1-0.2	SE254473.001	%	60 - 130%	83
	BH2_0.1-0.2	SE254473.002	%	60 - 130%	86
	BH3_0.1-0.2	SE254473.003	%	60 - 130%	91
	BH4_0.1-0.2	SE254473.004	%	60 - 130%	82

**OP Pesticides in Soil**

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1_0.1-0.2	SE254473.001	%	60 - 130%	103
	BH2_0.1-0.2	SE254473.002	%	60 - 130%	101
	BH3_0.1-0.2	SE254473.003	%	60 - 130%	101
	BH4_0.1-0.2	SE254473.004	%	60 - 130%	94
d14-p-terphenyl (Surrogate)	BH1_0.1-0.2	SE254473.001	%	60 - 130%	107
	BH2_0.1-0.2	SE254473.002	%	60 - 130%	107
	BH3_0.1-0.2	SE254473.003	%	60 - 130%	107
	BH4_0.1-0.2	SE254473.004	%	60 - 130%	96

**PAH (Polynuclear Aromatic Hydrocarbons) in Soil**

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1_0.1-0.2	SE254473.001	%	70 - 130%	103
	BH2_0.1-0.2	SE254473.002	%	70 - 130%	101
	BH3_0.1-0.2	SE254473.003	%	70 - 130%	101
	BH4_0.1-0.2	SE254473.004	%	70 - 130%	94
d14-p-terphenyl (Surrogate)	BH1_0.1-0.2	SE254473.001	%	70 - 130%	107
	BH2_0.1-0.2	SE254473.002	%	70 - 130%	107
	BH3_0.1-0.2	SE254473.003	%	70 - 130%	107
	BH4_0.1-0.2	SE254473.004	%	70 - 130%	96
d5-nitrobenzene (Surrogate)	BH1_0.1-0.2	SE254473.001	%	70 - 130%	104
	BH2_0.1-0.2	SE254473.002	%	70 - 130%	104
	BH3_0.1-0.2	SE254473.003	%	70 - 130%	105
	BH4_0.1-0.2	SE254473.004	%	70 - 130%	96

**PCBs in Soil**

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
TCMX (Surrogate)	BH1_0.1-0.2	SE254473.001	%	60 - 130%	85
	BH2_0.1-0.2	SE254473.002	%	60 - 130%	89
	BH3_0.1-0.2	SE254473.003	%	60 - 130%	94
	BH4_0.1-0.2	SE254473.004	%	60 - 130%	85

**VOC's in Soil**

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1_0.1-0.2	SE254473.001	%	60 - 130%	85
	BH2_0.1-0.2	SE254473.002	%	60 - 130%	85
	BH3_0.1-0.2	SE254473.003	%	60 - 130%	76
	BH4_0.1-0.2	SE254473.004	%	60 - 130%	79
d4-1,2-dichloroethane (Surrogate)	BH1_0.1-0.2	SE254473.001	%	60 - 130%	91
	BH2_0.1-0.2	SE254473.002	%	60 - 130%	93
	BH3_0.1-0.2	SE254473.003	%	60 - 130%	87
	BH4_0.1-0.2	SE254473.004	%	60 - 130%	86
d8-toluene (Surrogate)	BH1_0.1-0.2	SE254473.001	%	60 - 130%	99
	BH2_0.1-0.2	SE254473.002	%	60 - 130%	104
	BH3_0.1-0.2	SE254473.003	%	60 - 130%	93
	BH4_0.1-0.2	SE254473.004	%	60 - 130%	89

**Volatile Petroleum Hydrocarbons in Soil**

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1_0.1-0.2	SE254473.001	%	60 - 130%	85
	BH2_0.1-0.2	SE254473.002	%	60 - 130%	85
	BH3_0.1-0.2	SE254473.003	%	60 - 130%	76
	BH4_0.1-0.2	SE254473.004	%	60 - 130%	79
d4-1,2-dichloroethane (Surrogate)	BH1_0.1-0.2	SE254473.001	%	60 - 130%	91
	BH2_0.1-0.2	SE254473.002	%	60 - 130%	93
	BH3_0.1-0.2	SE254473.003	%	60 - 130%	87
	BH4_0.1-0.2	SE254473.004	%	60 - 130%	86



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 %
d8-toluene (Surrogate)	BH1_0.1-0.2	SE254473.001	%	60 - 130%	99
	BH2_0.1-0.2	SE254473.002	%	60 - 130%	104
	BH3_0.1-0.2	SE254473.003	%	60 - 130%	93
	BH4_0.1-0.2	SE254473.004	%	60 - 130%	89



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.

Mercury in Soil

Method: ME-(AU)-ENVJAN312

Sample Number	Parameter	Units	LOR	Result
LB292059.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-ENVJAN420

Sample Number	Parameter	Units	LOR	Result
LB292051.001	Alpha BHC	mg/kg	0.1	<0.1
	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
	Beta BHC	mg/kg	0.1	<0.1
	Lindane (gamma BHC)	mg/kg	0.1	<0.1
	Delta BHC	mg/kg	0.1	<0.1
	Heptachlor	mg/kg	0.1	<0.1
	Aldrin	mg/kg	0.1	<0.1
	Isodrin	mg/kg	0.1	<0.1
	Heptachlor epoxide	mg/kg	0.1	<0.1
	Gamma Chlordane	mg/kg	0.1	<0.1
	Alpha Chlordane	mg/kg	0.1	<0.1
	Alpha Endosulfan	mg/kg	0.2	<0.2
	p,p'-DDE	mg/kg	0.1	<0.1
	Dieldrin	mg/kg	0.2	<0.2
	Endrin	mg/kg	0.2	<0.2
	Beta Endosulfan	mg/kg	0.2	<0.2
	p,p'-DDD	mg/kg	0.1	<0.1
	Endrin aldehyde	mg/kg	0.1	<0.1
	Endosulfan sulphate	mg/kg	0.1	<0.1
	p,p'-DDT	mg/kg	0.1	<0.1
Endrin ketone	mg/kg	0.1	<0.1	
Methoxychlor	mg/kg	0.1	<0.1	
Mirex	mg/kg	0.1	<0.1	
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	78

OP Pesticides in Soil

Method: ME-(AU)-ENVJAN420

Sample Number	Parameter	Units	LOR	Result	
LB292051.001	Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	
	Bromophos Ethyl	mg/kg	0.2	<0.2	
	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	
	Diazinon (Dimpylate)	mg/kg	0.5	<0.5	
	Dichlorvos	mg/kg	0.5	<0.5	
	Dimethoate	mg/kg	0.5	<0.5	
	Ethion	mg/kg	0.2	<0.2	
	Fenitrothion	mg/kg	0.2	<0.2	
	Malathion	mg/kg	0.2	<0.2	
	Methodathion	mg/kg	0.5	<0.5	
	Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	102
		d14-p-terphenyl (Surrogate)	%	-	107

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-ENVJAN420

Sample Number	Parameter	Units	LOR	Result
LB292051.001	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

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.

**PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)**

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

Sample Number	Parameter	Units	LOR	Result
LB292051.001	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)	%	-	102
	d14-p-terphenyl (Surrogate)	%	-	107

**PCBs in Soil**

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

Sample Number	Parameter	Units	LOR	Result
LB292051.001	Arochlor 1016	mg/kg	0.2	<0.2
	Arochlor 1221	mg/kg	0.2	<0.2
	Arochlor 1232	mg/kg	0.2	<0.2
	Arochlor 1242	mg/kg	0.2	<0.2
	Arochlor 1248	mg/kg	0.2	<0.2
	Arochlor 1254	mg/kg	0.2	<0.2
	Arochlor 1260	mg/kg	0.2	<0.2
	Arochlor 1262	mg/kg	0.2	<0.2
	Arochlor 1268	mg/kg	0.2	<0.2
	Total PCBs (Arochlors)	mg/kg	1	<1
Surrogates	TCMX (Surrogate)	%	-	80

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

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

Sample Number	Parameter	Units	LOR	Result
LB292058.001	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

**Trace Metals (Total) in Water by ICPMS**

Method: ME-(AU)-[ENV]AN022/AN318

Sample Number	Parameter	Units	LOR	Result
LB292153.001	Total Arsenic	µg/L	1	<1
	Total Cadmium	µg/L	0.1	<0.1
	Total Chromium	µg/L	1	<1
	Total Copper	µg/L	1	<1
	Total Lead	µg/L	1	<1
	Total Nickel	µg/L	1	<1
	Total Zinc	µg/L	5	<5

**TRH (Total Recoverable Hydrocarbons) in Soil**

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

Sample Number	Parameter	Units	LOR	Result
LB292051.001	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		
LB292052.001	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)	%	-	85	
	Totals	Total BTEX*	mg/kg	0.6	<0.6	



# METHOD BLANKS

SE254473 R0

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
LB292052.001	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:  $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$   
 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:  $MAD = 100 \times SDL / Mean + LR$   
 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 give a different calculated RPD.

Mercury (total) in Water

Method: ME-(AU)-[ENV]AN311(Perth) /AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE254473.006	LB292163.004	Total Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0

Mercury in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE254473.004	LB292059.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE254473.005	LB292059.016	Mercury	mg/kg	0.05	<0.05	<0.05	194	0

Moisture Content

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE254471.001	LB292053.011	% Moisture	%w/w	1	10.410334346E9	7.583643122	40	6
SE254473.005	LB292053.020	% Moisture	%w/w	1	6.9	6.8	45	1

OC Pesticides in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE254471.001	LB292051.014	Alpha BHC	mg/kg	0.1	0.00089682170.0007731487	200	0	
		Hexachlorobenzene (HCB)	mg/kg	0.1	0.00031299320.0004094435	200	0	
		Beta BHC	mg/kg	0.1	0.00133162190.0014114871	200	0	
		Lindane (gamma BHC)	mg/kg	0.1	0.00044381550.0007323092	200	0	
		Delta BHC	mg/kg	0.1	0.00032788400.0002914494	200	0	
		Heptachlor	mg/kg	0.1	0.00247240920.0027648472	200	0	
		Aldrin	mg/kg	0.1	0.00115224490.0012795695	200	0	
		Isodrin	mg/kg	0.1	0.00058556540.0006072354	200	0	
		Heptachlor epoxide	mg/kg	0.1	0.00092349980.0015471843	200	0	
		Gamma Chlordane	mg/kg	0.1	0.00719989990.0075206194	200	0	
		Alpha Chlordane	mg/kg	0.1	0.00507038200.0051970973	200	0	
		Alpha Endosulfan	mg/kg	0.2	0.00676759670.0069367276	200	0	
		o,p'-DDE*	mg/kg	0.1	0.00676759670.0069367276	200	0	
		p,p'-DDE	mg/kg	0.1	0.00108307960.0011456666	200	0	
		Dieldrin	mg/kg	0.2	0.01650332810.0153318524	200	0	
		Endrin	mg/kg	0.2	0.00167644900.0017990490	200	0	
		Beta Endosulfan	mg/kg	0.2	0	0.0004098620	200	0
		o,p'-DDD*	mg/kg	0.1	0	0	200	0
		p,p'-DDD	mg/kg	0.1	0.00056231180.0003225747	200	0	
		Endrin aldehyde	mg/kg	0.1	0	0	200	0
		Endosulfan sulphate	mg/kg	0.1	0.00017419980.0004031565	200	0	
		o,p'-DDT*	mg/kg	0.1	0.00028088250.0003216808	200	0	
		p,p'-DDT	mg/kg	0.1	0.00353410030.0033425039	200	0	
		Endrin ketone	mg/kg	0.1	0.00046272180.0011625185	200	0	
		Methoxychlor	mg/kg	0.1	0.00192985820.0015121218	200	0	
		Mirex	mg/kg	0.1	0.00055651340.0018239844	200	0	
		trans-Nonachlor	mg/kg	0.1	0.00359438060.0034276812	200	0	
		Total CLP OC Pesticides	mg/kg	1	0	0	200	0
		Total OC VIC EPA	mg/kg	1	0	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13328603170.1361536418	30	2
SE254473.004	LB292051.022	Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
		Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	200	0
		Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
		Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
		Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
		Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
		Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
		o,p'-DDE*	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula:  $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$   
 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:  $MAD = 100 \times SDL / Mean + LR$   
 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 give a different calculated RPD.

OC Pesticides in Soil (continued)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE254473.004	LB292051.022	p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
		Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
		Endrin	mg/kg	0.2	<0.2	<0.2	200	0
		Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
		o,p'-DDD*	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
		o,p'-DDT*	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin ketone	mg/kg	0.1	<0.1	<0.1	200	0
		Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
		Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
		Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
		Total OC VIC EPA	mg/kg	1	<1	<1	200	0
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.12	0.14	30	10

OP Pesticides in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE254471.001	LB292051.014	Azinphos-methyl (Guthion)	mg/kg	0.2	0	0	200	0
		Bromophos Ethyl	mg/kg	0.2	0.00067564896	5.5398143802	200	0
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	0	0	200	0
		Diazinon (Dimpylate)	mg/kg	0.5	0	0	200	0
		Dichlorvos	mg/kg	0.5	0	0.0011734701	200	0
		Dimethoate	mg/kg	0.5	0.00136150690	0.0067036183	200	0
		Ethion	mg/kg	0.2	0	0.0059842293	200	0
		Fenitrothion	mg/kg	0.2	0	0.0008827847	200	0
		Malathion	mg/kg	0.2	0.0026628686	0.0042328759	200	0
		Methodathion	mg/kg	0.5	0.00578848300	0.010754368	200	0
		Parathion-ethyl (Parathion)	mg/kg	0.2	0.00081304770	0.0010796421	200	0
		Total OP Pesticides*	mg/kg	1.7	0	0	200	0
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.49797082940	0.4981792244	30	0
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.52055327820	0.5219370920	30	0
SE254473.004	LB292051.022	Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
		Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
		Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
		Ethion	mg/kg	0.2	<0.2	<0.2	200	0
		Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
		Malathion	mg/kg	0.2	<0.2	<0.2	200	0
		Methodathion	mg/kg	0.5	<0.5	<0.5	200	0
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
		Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	6

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE254471.001	LB292051.014	Naphthalene	mg/kg	0.1	0.00732968760	0.0153693910	200	0
		2-methylnaphthalene	mg/kg	0.1	0.00526494250	0.0106575080	200	0
		1-methylnaphthalene	mg/kg	0.1	0.00517919200	0.0105857328	200	0
		Acenaphthylene	mg/kg	0.1	0.02836528200	0.0947708821	192	0
		Acenaphthene	mg/kg	0.1	0.00505303820	0.0130499225	200	0
		Fluorene	mg/kg	0.1	0.01252899760	0.0897343313	200	0
		Phenanthrene	mg/kg	0.1	0.13893314620	0.9313468799	49	148 ⊕
		Anthracene	mg/kg	0.1	0.04530012680	0.2484821502	98	85
		Fluoranthene	mg/kg	0.1	0.26154455911	0.0295040378	45	119 ⊕
		Pyrene	mg/kg	0.1	0.26570930420	0.9741393433	46	114 ⊕
		Benzo(a)anthracene	mg/kg	0.1	0.13025471340	0.4378425593	65	108 ⊕

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula:  $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$   
 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:  $MAD = 100 \times SDL / Mean + LR$   
 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 give a different calculated RPD.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE254471.001	LB292051.014	Chrysene	mg/kg	0.1	0.1473914804	0.4173623729	65	96 @	
		Benzo(b&j)fluoranthene	mg/kg	0.1	0.1759535360	0.4466772445	62	87 @	
		Benzo(k)fluoranthene	mg/kg	0.1	0.0599146182	0.1758046506	115	55	
		Benzo(a)pyrene	mg/kg	0.1	0.1555120865	0.4226484729	65	92 @	
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.1169653468	0.2366999210	87	68	
		Dibenzo(ah)anthracene	mg/kg	0.1	0.0212129967	0.0493779589	200	0	
		Benzo(ghi)perylene	mg/kg	0.1	0.1169653468	0.2366999210	87	68	
		Carcinogenic PAHs, BaP TEQ <LOR=0*	mg/kg	0.2	0.2064644762	0.5588915334	62	92 @	
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	0.2564644762	0.6088915334	56	81 @	
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	0.3064644762	0.6588915334	72	73 @	
		Total PAH (18)	mg/kg	0.8	1.5691441380	5.5572075538	33	112 @	
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5122170240	0.5104438094	30	0
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4979708294	0.4981792244	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5205532782	0.5219370920	30	0
SE254473.004	LB292051.022	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	0.2	0.2	80	32	
		Anthracene	mg/kg	0.1	<0.1	<0.1	200	0	
		Fluoranthene	mg/kg	0.1	0.4	0.5	54	26	
		Pyrene	mg/kg	0.1	0.3	0.4	56	22	
		Benzo(a)anthracene	mg/kg	0.1	0.1	0.1	103	15	
		Chrysene	mg/kg	0.1	0.1	0.2	97	29	
		Benzo(b&j)fluoranthene	mg/kg	0.1	0.2	0.2	80	32	
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.1	148	6	
		Benzo(a)pyrene	mg/kg	0.1	0.1	0.2	89	25	
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.1	0.1	116	18	
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0	
		Benzo(ghi)perylene	mg/kg	0.1	0.1	0.1	116	18	
		Carcinogenic PAHs, BaP TEQ <LOR=0*	mg/kg	0.2	<0.2	0.3	98	24	
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	0.2	0.3	82	21	
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	<0.3	0.4	102	17	
		Total PAH (18)	mg/kg	0.8	1.7	2.2	35	26	
Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	6		
	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4		
	d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	6		

PCBs in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE254471.001	LB292051.014	Arochlor 1016	mg/kg	0.2	0	0	200	0
		Arochlor 1221	mg/kg	0.2	0	0	200	0
		Arochlor 1232	mg/kg	0.2	0	0	200	0
		Arochlor 1242	mg/kg	0.2	0	0	200	0
		Arochlor 1248	mg/kg	0.2	0	0	200	0
		Arochlor 1254	mg/kg	0.2	0	0	200	0
		Arochlor 1260	mg/kg	0.2	0	0	200	0
		Arochlor 1262	mg/kg	0.2	0	0	200	0
		Arochlor 1268	mg/kg	0.2	0	0	200	0
		Total PCBs (Arochlors)	mg/kg	1	0	0	200	0
		Surrogates	TCMX (Surrogate)	mg/kg	-	0.1369951006	0.1396508591	30
SE254473.004	LB292051.022	Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0		

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula:  $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$   
 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:  $MAD = 100 \times SDL / Mean + LR$   
 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 give a different calculated RPD.

PCBs in Soil (continued)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE254473.004	LB292051.022	Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
		Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	mg/kg	-	0	0	30	9

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 %
SE254471.002	LB292058.014	Arsenic, As	mg/kg	1	4.90166666664.5889477310	51	51	7
		Cadmium, Cd	mg/kg	0.3	0.15606557370.1475470588	200	200	0
		Chromium, Cr	mg/kg	0.5	9.34349726779.9591922689	35	35	6
		Copper, Cu	mg/kg	0.5	26.34163934422.4454206722	32	32	16
		Nickel, Ni	mg/kg	0.5	10.83959016391.911029075E	34	34	9
		Lead, Pb	mg/kg	1	43.68535519123.063599831E	32	32	1
		Zinc, Zn	mg/kg	2	01.12213114770.6305428571	32	32	36 @
SE254473.005	LB292058.022	Arsenic, As	mg/kg	1	5	5	50	2
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	8.6	8.8	36	2
		Copper, Cu	mg/kg	0.5	7.1	6.6	37	7
		Nickel, Ni	mg/kg	0.5	3.3	3.6	45	9
		Lead, Pb	mg/kg	1	18	19	35	1
		Zinc, Zn	mg/kg	2	54	57	34	6

Trace Metals (Total) in Water by ICPMS

Method: ME-(AU)-[ENV]AN022/AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE254493.003	LB292153.014	Total Chromium	µg/L	1	0.231	0.216	200	0
SE254510.003	LB292153.021	Total Arsenic	µg/L	1	4.387	4.084	39	7
		Total Cadmium	µg/L	0.1	-0.034	0.013	200	0
		Total Chromium	µg/L	1	7.028	7.416	29	5
		Total Lead	µg/L	1	7.304	6.564	29	11
		Total Nickel	µg/L	1	4.96	5.318	34	7

TRH (Total Recoverable Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE254471.001	LB292051.014	TRH C10-C14	mg/kg	20	5.50777101595.7829376581	200	200	0
		TRH C15-C28	mg/kg	45	46.74948106104.630254098E	128	128	4
		TRH C29-C36	mg/kg	45	32.42954149570.286703865C	110	110	22
		TRH C37-C40	mg/kg	100	30.59675534522.1087520677	200	200	0
		TRH C10-C36 Total	mg/kg	110	09.17902255650.286703865C	168	168	0
		TRH >C10-C40 Total (F bands)	mg/kg	210	0	0	200	0
		TRH F Bands	mg/kg	25	7.45390928397.5914926050	200	200	0
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	0	0	200	0
		TRH >C16-C34 (F3)	mg/kg	90	33.56855305825.386783623E	143	143	0
		TRH >C34-C40 (F4)	mg/kg	120	54.24333388979.732731684E	200	200	0
SE254473.004	LB292051.022	TRH C10-C14	mg/kg	20	<20	<20	153	0
		TRH C15-C28	mg/kg	45	120	56	82	69
		TRH C29-C36	mg/kg	45	100	73	82	31
		TRH C37-C40	mg/kg	100	<100	<100	200	0
		TRH C10-C36 Total	mg/kg	110	220	130	94	50
		TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	170	0
		TRH F Bands	mg/kg	25	<25	<25	163	0
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
		TRH >C16-C34 (F3)	mg/kg	90	190	110	90	51
		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 %
SE254442.006	LB292052.014	Monocyclic	Benzene	mg/kg	0.1	0.00142102700.0014437887	200	0
		Aromatic	Toluene	mg/kg	0.1	0.00534153580.0052454867	200	0
			Ethylbenzene	mg/kg	0.1	0.0009683007.0.0008817229	200	0
			m/p-xylene	mg/kg	0.2	0.00304187060.0035460965	200	0
			o-xylene	mg/kg	0.1	0.00128227420.0008744894	200	0
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	0.00298269510.0028497185	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.98232210907.9265245103	50	1
			d8-toluene (Surrogate)	mg/kg	-	9.26070014249.3512927274	50	1

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula:  $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$   
 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:  $MAD = 100 \times SDL / Mean + LR$   
 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 give a different calculated RPD.

VOC's in Soil (continued)

Method: ME-(AU)-IENVJAN433

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE254442.006	LB292052.014	Surrogates	Bromofluorobenzene (Surrogate)	mg/kg	-	8.13661709268.0637276652	50	1	
		Totals	Total BTEX*	mg/kg	0.6	0	0	200	0
			Total Xylenes*	mg/kg	0.3	0.00432414480.0044205860	0	200	0
SE254473.004	LB292052.023	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	-	8.6	9.1	50	6
			d8-toluene (Surrogate)	mg/kg	-	8.9	10.0	50	11
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.9	8.5	50	7
		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)-IENVJAN433

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE254442.006	LB292052.014		TRH C6-C10	mg/kg	25	4.83559801643.7309613547	200	0	
			TRH C6-C9	mg/kg	20	1.89468403661.7344381816	200	0	
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.98232210907.9265245103	50	1	
			d8-toluene (Surrogate)	mg/kg	-	9.26070014249.3512927274	50	1	
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.13661709268.0637276652	50	1	
		VPH F Bands	Benzene (F0)	mg/kg	0.1	0.00142102700.0014437887	200	0	
	TRH C6-C10 minus BTEX (F1)	mg/kg	25	4.83559801643.7309613547	200	0			
SE254473.004	LB292052.023		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	-	8.6	9.1	50	6
			d8-toluene (Surrogate)	mg/kg	-	8.9	10.0	50	11
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.9	8.5	50	7
		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.

**Mercury in Soil**

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB292059.002	Mercury	mg/kg	0.05	0.23	0.2	80 - 120	115

**OC Pesticides in Soil**

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB292051.002	Delta BHC	mg/kg	0.1	0.1	0.2	60 - 140	68
	Heptachlor	mg/kg	0.1	0.1	0.2	60 - 140	74
	Aldrin	mg/kg	0.1	0.1	0.2	60 - 140	70
	Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	75
	Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	71
	p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	77
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.12	0.15	40 - 130	78

**OP Pesticides in Soil**

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB292051.002	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.9	2	60 - 140	94	
	Diazinon (Dimpylate)	mg/kg	0.5	2.0	2	60 - 140	98	
	Dichlorvos	mg/kg	0.5	2.2	2	60 - 140	108	
	Ethion	mg/kg	0.2	2.1	2	60 - 140	103	
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	103
	d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	108	

**PAH (Polynuclear Aromatic Hydrocarbons) in Soil**

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB292051.002	Naphthalene	mg/kg	0.1	4.0	4	60 - 140	99	
	Acenaphthylene	mg/kg	0.1	4.1	4	60 - 140	104	
	Acenaphthene	mg/kg	0.1	4.3	4	60 - 140	107	
	Phenanthrene	mg/kg	0.1	4.2	4	60 - 140	104	
	Anthracene	mg/kg	0.1	4.2	4	60 - 140	104	
	Fluoranthene	mg/kg	0.1	4.0	4	60 - 140	100	
	Pyrene	mg/kg	0.1	4.4	4	60 - 140	109	
	Benzo(a)pyrene	mg/kg	0.1	4.1	4	60 - 140	103	
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	103
	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	103	
d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	108		

**PCBs in Soil**

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB292051.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	111

**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 %
LB292058.002	Arsenic, As	mg/kg	1	340	318.22	80 - 120	107
	Cadmium, Cd	mg/kg	0.3	4.1	4.81	70 - 130	86
	Chromium, Cr	mg/kg	0.5	41	38.31	80 - 120	108
	Copper, Cu	mg/kg	0.5	320	290	80 - 120	111
	Nickel, Ni	mg/kg	0.5	190	187	80 - 120	100
	Lead, Pb	mg/kg	1	91	89.9	80 - 120	101
	Zinc, Zn	mg/kg	2	280	273	80 - 120	103

**Trace Metals (Total) in Water by ICPMS**

Method: ME-(AU)-[ENV]AN022/AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB292153.002	Total Arsenic	µg/L	1	21	20	80 - 120	103
	Total Cadmium	µg/L	0.1	21	20	80 - 120	104
	Total Chromium	µg/L	1	21	20	80 - 120	104
	Total Copper	µg/L	1	21	20	80 - 120	107
	Total Lead	µg/L	1	21	20	80 - 120	103
	Total Nickel	µg/L	1	21	20	80 - 120	106
	Total Zinc	µg/L	5	20	20	80 - 120	100

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.

**TRH (Total Recoverable Hydrocarbons) in Soil**

Method: ME-(AU)-[ENV]JAN403

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB292051.002	TRH C10-C14	mg/kg	20	45	40	60 - 140	112	
	TRH C15-C28	mg/kg	45	<45	40	60 - 140	93	
	TRH C29-C36	mg/kg	45	<45	40	60 - 140	87	
	TRH F Bands	TRH >C10-C16	mg/kg	25	45	40	60 - 140	112
	TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	80	
	TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	96	

**VOC's in Soil**

Method: ME-(AU)-[ENV]JAN433

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB292052.002	Monocyclic	Benzene	mg/kg	0.1	4.4	5	60 - 140	87
	Aromatic	Toluene	mg/kg	0.1	4.1	5	60 - 140	82
		Ethylbenzene	mg/kg	0.1	4.1	5	60 - 140	81
		m/p-xylene	mg/kg	0.2	8.2	10	60 - 140	82
		o-xylene	mg/kg	0.1	4.2	5	60 - 140	83
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.1	10	70 - 130	81
		d8-toluene (Surrogate)	mg/kg	-	7.9	10	70 - 130	79
		Bromofluorobenzene (Surrogate)	mg/kg	-	8.5	10	70 - 130	85

**Volatile Petroleum Hydrocarbons in Soil**

Method: ME-(AU)-[ENV]JAN433

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB292052.002	TRH C6-C10	mg/kg	25	96	92.5	60 - 140	104	
	TRH C6-C9	mg/kg	20	83	80	60 - 140	104	
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.1	10	70 - 130	81
		Bromofluorobenzene (Surrogate)	mg/kg	-	8.5	10	70 - 130	85
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	72	62.5	60 - 140	114

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%
SE254231.024	LB292059.004	Mercury	mg/kg	0.05	0.21	0.01732305536	0.2	98

OC Pesticides in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE254231.024	LB292051.004	Alpha BHC	mg/kg	0.1	<0.1	0	-	-
		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	0.00015863239	-	-
		Beta BHC	mg/kg	0.1	<0.1	0	-	-
		Lindane (gamma BHC)	mg/kg	0.1	<0.1	0	-	-
		Delta BHC	mg/kg	0.1	0.1	0.00083972036	0.2	71
		Heptachlor	mg/kg	0.1	0.2	0	0.2	79
		Aldrin	mg/kg	0.1	0.1	0.00031756613	0.2	74
		Isodrin	mg/kg	0.1	<0.1	0.00061676407	-	-
		Heptachlor epoxide	mg/kg	0.1	<0.1	0	-	-
		Gamma Chlordane	mg/kg	0.1	<0.1	0	-	-
		Alpha Chlordane	mg/kg	0.1	<0.1	0	-	-
		Alpha Endosulfan	mg/kg	0.2	<0.2	0	-	-
		o,p'-DDE*	mg/kg	0.1	<0.1	0	-	-
		p,p'-DDE	mg/kg	0.1	<0.1	0.00025482336	-	-
		Dieldrin	mg/kg	0.2	<0.2	0	0.2	80
		Endrin	mg/kg	0.2	<0.2	0.00068429070	0.2	74
		Beta Endosulfan	mg/kg	0.2	<0.2	0	-	-
		o,p'-DDD*	mg/kg	0.1	<0.1	0.00125946567	-	-
		p,p'-DDD	mg/kg	0.1	<0.1	0	-	-
		Endrin aldehyde	mg/kg	0.1	<0.1	0.00057058610	-	-
		Endosulfan sulphate	mg/kg	0.1	<0.1	0	-	-
		o,p'-DDT*	mg/kg	0.1	<0.1	0	-	-
		p,p'-DDT	mg/kg	0.1	0.2	0	0.2	83
		Endrin ketone	mg/kg	0.1	<0.1	0.00028458125	-	-
		Methoxychlor	mg/kg	0.1	<0.1	0	-	-
		Mirex	mg/kg	0.1	<0.1	0	-	-
		trans-Nonachlor	mg/kg	0.1	<0.1	0	-	-
		Total CLP OC Pesticides	mg/kg	1	<1	0	-	-
		Total OC VIC EPA	mg/kg	1	<1	0	-	-
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.12	0.11854836097	-	82

OP Pesticides in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE254231.024	LB292051.004	Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	0.00027477184	-	-
		Bromophos Ethyl	mg/kg	0.2	<0.2	0	-	-
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.8	0.00096913612	2	89
		Diazinon (Dimpylate)	mg/kg	0.5	1.8	0	2	92
		Dichlorvos	mg/kg	0.5	2.0	0	2	100
		Dimethoate	mg/kg	0.5	<0.5	0.00055333948	-	-
		Ethion	mg/kg	0.2	1.9	0.00051182272	2	96
		Fenitrothion	mg/kg	0.2	<0.2	0	-	-
		Malathion	mg/kg	0.2	<0.2	0	-	-
		Methidathion	mg/kg	0.5	<0.5	4.86712230832	-	-
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	0	-	-
		Total OP Pesticides*	mg/kg	1.7	7.6	0	-	-
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.50518536499	-	101
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.53063720731	-	106

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE254231.024	LB292051.004	Naphthalene	mg/kg	0.1	3.9	0.00056173678	4	97
		2-methylnaphthalene	mg/kg	0.1	<0.1	0.00022028515	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	0.00025321032	-	-
		Acenaphthylene	mg/kg	0.1	4.1	0.00043001374	4	102
		Acenaphthene	mg/kg	0.1	4.2	0	4	106
		Fluorene	mg/kg	0.1	<0.1	0.00013382374	-	-

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.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE254231.024	LB292051.004	Phenanthrene	mg/kg	0.1	4.1	0.00164018755	4	103	
		Anthracene	mg/kg	0.1	4.1	0.00160262229	4	102	
		Fluoranthene	mg/kg	0.1	3.9	0.00068234380	4	98	
		Pyrene	mg/kg	0.1	4.3	0.00083956155	4	107	
		Benzo(a)anthracene	mg/kg	0.1	<0.1	0.00460204043	-	-	
		Chrysene	mg/kg	0.1	<0.1	0.00047837966	-	-	
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0.00054904032	-	-	
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0	-	-	
		Benzo(a)pyrene	mg/kg	0.1	4.1	0.00096156550	4	101	
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0.00039221448	-	-	
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0.00010703327	-	-	
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	0.00039221448	-	-	
		Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	4.1	0	-	-	
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	4.1	0.121	-	-	
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	4.2	0.242	-	-	
		Total PAH (18)	mg/kg	0.8	33	0	-	-	
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.50063842173	-	100
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.50518536499	-	101
	d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.53063720731	-	106		

PCBs in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE254231.024	LB292051.004	Arochlor 1016	mg/kg	0.2	<0.2	0	-	-
		Arochlor 1221	mg/kg	0.2	<0.2	0	-	-
		Arochlor 1232	mg/kg	0.2	<0.2	0	-	-
		Arochlor 1242	mg/kg	0.2	<0.2	0	-	-
		Arochlor 1248	mg/kg	0.2	<0.2	0	-	-
		Arochlor 1254	mg/kg	0.2	<0.2	0	-	-
		Arochlor 1260	mg/kg	0.2	0.5	0	0.4	118
		Arochlor 1262	mg/kg	0.2	<0.2	0	-	-
		Arochlor 1268	mg/kg	0.2	<0.2	0	-	-
		Total PCBs (Arochlors)	mg/kg	1	<1	0	-	-
Surrogates	TCMX (Surrogate)	mg/kg	-	0	0.12271188384	-	84	

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%
SE254231.024	LB292058.004	Arsenic, As	mg/kg	1	49	2.66101571232	50	93
		Cadmium, Cd	mg/kg	0.3	47	0.00808955967	50	94
		Chromium, Cr	mg/kg	0.5	57	7.98080003706	50	98
		Copper, Cu	mg/kg	0.5	53	4.74902094783	50	96
		Nickel, Ni	mg/kg	0.5	51	2.90325308252	50	97
		Lead, Pb	mg/kg	1	52	6.23300572778	50	92
		Zinc, Zn	mg/kg	2	59	13.35811011947	50	92

TRH (Total Recoverable Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE254231.024	LB292051.004	TRH C10-C14	mg/kg	20	50	2.79542838487	40	118	
		TRH C15-C28	mg/kg	45	<45	0	40	106	
		TRH C29-C36	mg/kg	45	<45	0.57437317595	40	95	
		TRH C37-C40	mg/kg	100	<100	0.33850890598	-	-	
		TRH C10-C36 Total	mg/kg	110	<110	0	-	-	
		TRH >C10-C40 Total (F bands)	mg/kg	210	<210	0	-	-	
		TRH F	TRH >C10-C16	mg/kg	25	50	2.64255339507	40	118
		Bands	TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	50	0	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	0	40	93
			TRH >C34-C40 (F4)	mg/kg	120	<120	0.54161424957	-	-

VOC's in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE254231.024	LB292052.004	Monocyclic	Benzene	mg/kg	0.1	4.4	0.00502665443	5	89
		Aromatic	Toluene	mg/kg	0.1	4.3	0.00912257958	5	87
			Ethylbenzene	mg/kg	0.1	4.4	0.00941163365	5	87
			m/p-xylene	mg/kg	0.2	8.8	0.02232871993	10	88

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%	
SE254231.024	LB292052.004	Monocyclic	o-xylene	mg/kg	0.1	4.5	0.01185968160	5	90
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	0.00315906487	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.5	8.30155661847	10	85
			d8-toluene (Surrogate)	mg/kg	-	8.0	8.51496741611	10	80
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.0	7.80372899346	10	90
		Totals	Total BTEX*	mg/kg	0.6	26	0	-	-
			Total Xylenes*	mg/kg	0.3	13	0.03418840154	-	-

Volatile Petroleum Hydrocarbons in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE254231.024	LB292052.004	TRH C6-C10	mg/kg	25	100	0.57683210167	92.5	109	
		TRH C6-C9	mg/kg	20	87	0.49284267569	80	109	
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.5	8.30155661847	10	85
			d8-toluene (Surrogate)	mg/kg	-	8.0	8.51496741611	10	80
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.0	7.80372899346	-	90
		VPH F	Benzene (F0)	mg/kg	0.1	4.4	0.00502665443	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	75	0.57683210167	62.5	119

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

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:  $MAD = 100 \times SDL / Mean + LR$

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.

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](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.

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

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law .

This test report shall not be reproduced, except in full.



**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](mailto:au.samplereceipt.sydney@sgs.com)

### CHAIN OF CUSTODY & ANALYSIS REQUEST

Company Name:	Hunter Environmental Consulting	Project Name/No:	<u>TR4 (MCC)</u>
Address:	40 Glenwood Drive, Thornton NSW 2322	Purchase Order No:	<u>T84</u>
Contact Name:	Gilles Renda	Results Required By:	1-day TAT
		Telephone:	0460 664 224
		Facsimile:	
		Email Results:	<a href="mailto:results@hunterenviro.com.au">results@hunterenviro.com.au</a> , <a href="mailto:gr@hunterenviro.com.au">gr@hunterenviro.com.au</a>

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL17	CL2										
BH1_0.1-0.2	27/9/2023	1		x			x											
BH2_0.1-0.2	27/9/2023	2		x			x											
BH3_0.1-0.2	27/9/2023	3		x			x											
BH4_0.1-0.2	27/9/2023	4		x			x											
Dup1	27/9/2023	5		x			x											
RW1	27/9/2023	6		x			x											

SGS EHS Sydney COC  
**SE254473**

Relinquished By: GR  
 Date/Time: 27/9/2023  
 Received By: For Subana  
 Date/Time: 28/09/23 @ 10:20

Relinquished By: \_\_\_\_\_  
 Date/Time: \_\_\_\_\_

Received By: \_\_\_\_\_  
 Date/Time: \_\_\_\_\_

Samples Intact: Yes / No  
 Temperature: Ambient / Chilled  
 Sample Cooler Sealed: Yes / No  
 Comments:



## Yin, Emily (Sydney)

---

**From:** AU.Environmental.Sydney, AU (Sydney)  
**Sent:** Friday, 29 September 2023 12:37 PM  
**To:** AU.SampleReceipt.Sydney, AU (Sydney)  
**Subject:** FW: [EXTERNAL] RE: SGS Sample Receipt Advice (Ref: MCC, Lab Ref: SE254473)

FYA

*Rita Azzi*  
**Industries and Environment**  
Client Services Representative

**SGS Australia Pty Ltd**  
Unit 16, 33 Maddox Street  
Alexandria, NSW, 2015  
Phone: +61 (0)2 8594 0400  
Direct: +61 (0)2 8594 0431  
E-mail: [Rita.azzi@sgs.com](mailto:Rita.azzi@sgs.com)  
General E-mail : [au.environmental.sydney@sgs.com](mailto:au.environmental.sydney@sgs.com)  
Web: [www.au.sgs.com](http://www.au.sgs.com)

Working Monday to Friday : 10 to 6pm

---

**From:** Results <[Results@hunterenviro.com.au](mailto:Results@hunterenviro.com.au)>  
**Sent:** Friday, 29 September 2023 12:33 PM  
**To:** AU.Environmental.Sydney, AU (Sydney) <[AU.Environmental.Sydney@SGS.com](mailto:AU.Environmental.Sydney@SGS.com)>  
**Cc:** Gilles Renda (Hunter Enviro) <[gr@hunterenviro.com.au](mailto:gr@hunterenviro.com.au)>  
**Subject:** [EXTERNAL] RE: SGS Sample Receipt Advice (Ref: MCC, Lab Ref: SE254473)

\*\*\* WARNING: this message is from an EXTERNAL SENDER. Please be cautious, particularly with links and attachments. \*\*\*

---

Hi Guys,

Please use

E0126 (MCC) as the job number

And HEC0248 as the PO for this one

regards

**Jake Duck**  
Environmental Scientist



Sustainable Environmental Solutions

A proud member of Hunter Construction Group



M. 0499 160 449  
P. 02 4067 4151  
E. [jd@hunterenviro.com.au](mailto:jd@hunterenviro.com.au)  
[hunterenviro.com.au](http://hunterenviro.com.au)



## SAMPLE RECEIPT ADVICE

SE254473

### CLIENT DETAILS

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

Telephone 0460 664 225  
Facsimile (Not specified)  
Email gr@hunterenviro.com.au

Project **E0126 (MCC)**  
Order Number **HEC0248**  
Samples 6

### LABORATORY DETAILS

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

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

Samples Received Thu 28/9/2023  
Report Due Fri 29/9/2023  
SGS Reference **SE254473**

### SUBMISSION DETAILS

This is to confirm that 6 samples were received on Thursday 28/9/2023. Results are expected to be ready by COB Friday 29/9/2023. Please quote SGS reference SE254473 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	5 Soil, 1 Water	Type of documentation received	COC
Date documentation received	28/9/2023	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	15.5°C
Sample container provider	SGS	Turnaround time requested	Next Day
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

### COMMENTS

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

CLIENT DETAILS

Client **HUNTER ENVIRONMENTAL CONSULTING PTY LTD**

Project **E0126 (MCC)**

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH1_0.1-0.2	30	14	26	11	7	10	11	7
002	BH2_0.1-0.2	30	14	26	11	7	10	11	7
003	BH3_0.1-0.2	30	14	26	11	7	10	11	7
004	BH4_0.1-0.2	30	14	26	11	7	10	11	7
005	Dup1	-	-	-	-	7	-	-	-

CONTINUED OVERLEAF

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

The numbers shown in the table indicate the number of results requested in each package.

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

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

CLIENT DETAILS

Client HUNTER ENVIRONMENTAL CONSULTING PTY LTD

Project E0126 (MCC)

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (total) in Water	Mercury in Soil	Moisture Content	Trace Metals (Total) in Water by ICPMS
001	BH1_0.1-0.2	-	1	1	-
002	BH2_0.1-0.2	-	1	1	-
003	BH3_0.1-0.2	-	1	1	-
004	BH4_0.1-0.2	-	1	1	-
005	Dup1	-	1	1	-
006	RW1	1	-	-	7

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