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DIRT+ **DOCTORS**

GEOTECHNICAL TESTING SERVICES



Prepared For: Bulk Recovery Solutions
Address: 16 Kerr Road, Ingleburn NSW
Job No: DDE-199_1
Date: 19-07-18

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Bulk Recovery Solutions DDE-199_1

Stage 2 Environmental Investigation

16 Kerr Road, Ingleburn NSW

Report No.	DDE-199_1
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List of Abbreviations

A list of the common abbreviations used throughout this report is provided below.

ACM	Asbestos Containing Material
AEC	Area of Environmental Concern
AGST	Above Ground Storage Tank
AHD	Australian Height Datum
bgs	Below ground surface
CSM	Conceptual site model
BTEX	Benzene, toluene, ethylbenzene and xylenes
B(a)P	Benzo(a)pyrene
CCA	Copper Chromate Arsenate
COC	Contaminants of Concern
DD	Dirt Doctors Geotechnical Testing Services Pty Ltd
DEC	NSW Department of Environment and Conservation
DECCW	NSW Department of Environment, Climate Change and Water
DQI	Data quality indicator
DQOs	Data Quality Objectives
DWE	NSW Department of Water and Energy
EPA	NSW Environment Protection Authority
ESA	Environmental Site Assessment
ha	Hectare
HIL	Health based investigation level
LOR	Limit of Reporting
OEH	Office of Environment and Heritage
PAHs	Polycyclic aromatic hydrocarbons
PID	Photo-ionisation Detector
PCB	Polychlorinated Biphenyl
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RPD	Relative Percentage Difference
SAQP	Sampling, Analysis and Quality Plan
TRH	Total Recoverable Hydrocarbons (previously Total Petroleum Hydrocarbons)
TSS	Total Suspended Solids
UST	Underground Storage Tank
VOC	Volatile Organic Compound

Executive summary

This executive summary presents a synopsis of the Detailed Site Investigation Assessment for 16 Kerr Road, Ingleburn NSW. The site was previously used as vacant land before being converted to a commercial/industrial development with current site use as a waste transfer station. The site is to be used for continued use as a waste transfer station. The site is legally defined Lot 16 in Deposited Plan 717203.

The site is bounded by commercial developments to the south and west, railway lines followed by residential developments to the east and Henderson Road followed by commercial developments to the north. The site encompasses a total area of approximately 1.297ha.

The object of the Detailed Site Investigation was to ascertain whether the site presents a risk to human health and/or the environment arising from any past/present activities at the site or neighboring properties from soil and groundwater contamination. Laboratory testing was undertaken to re-inforce the results of the desktop study. The scope of work included a documentary review, a site investigation, chemical analyses of thirty-five (32) soils samples drilled to 1.5m below existing surface level, collection of two groundwater samples from installed monitoring wells, together with preparation of this report.

Historical review has indicated that the site was previously vacant land before being converted to a commercial development. From historical review, since being developed, the land is likely to have been used for commercial/industrial use with no obvious change.

The site historical review prepared by Dirt Doctors indicated the following areas of potential environmental concern:

- Potential importation of uncontrolled fill that may contain various contaminants;
- Hardstand areas where leaks and spills from vehicles and waste storage may have occurred;

Dirt Doctors therefore recommended material testing be carried out to determine the presence of contamination in order to determine the suitability of the site for proposed re-development and continued commercial/industrial use.

A search of the NSW EPA Contaminated Land Management record of notices for the Ingleburn area cannot be found. No notices have been issued to the subject site. Furthermore, the listed sites on the register are situated at such a distance (greater than 200m), that they are not believed to have provided a potential contamination risk to the subject property.

A search of the POEO public register of licensed and delicensed premises (DECC) indicated no licensed premises within the immediate surrounding area of the site (within 200m). Furthermore, the listed sites on the register are situated at such a distance (greater than 200m), that they are not believed to have provided a potential contamination risk to the subject property. The site is listed on the POEO register due to its current use as a waste transfer facility.

An intrusive soil investigation was conducted on the site. A total of twenty-five (25) boreholes were excavated at selected locations across the site with samples collected from the in-situ material in a judgmental based sampling method.

Thirty-two (32) soils samples and two (2) groundwater samples were recovered and sent to a NATA accredited laboratory for analysis. Test results revealed levels of heavy metals are below the adopted assessment criteria (HILs (D), EIL). Total Petroleum Hydrocarbons (TPH), Polycyclic Aromatic Hydrocarbons (PAH) recorded levels were below the acceptable criteria (ESL).

The results of the chemical analyses indicate that the site does not present a risk to human health or the environment in a 'commercial/industrial' setting.

This report is a Detailed Site Investigation with laboratory testing undertaken. Whilst the samples collected indicated the site does not contain contamination at sampling locations above the adopted investigation criteria, it is possible that contaminated soils may be present between sampling locations.

The data quality objectives of the report have been fulfilled. Therefore, the findings of this report, and the results of the chemical analyses indicate the site is suitable for ongoing use in a 'commercial/industrial' setting and does not require any remediation works.

1.0 INTRODUCTION

1.1 Overview

Dirt Doctors Geotechnical Testing Services Pty Ltd (DD) have undertaken a Detailed Site Investigation with testing and analysis as requested by Bulk Recovery Solutions at the site; 16 Kerr Rd, Ingleburn NSW (the site).

The objectives of DD assessment are to:

- Assess the suitability of the site for continued commercial/industrial use based on its current condition and the findings of this investigation.
- Assess the potential risk posed to human health and/or the environment due to contamination.
- Comment on the suitability of the site for current and proposed land use.

2.0 SCOPE OF WORK

The following scope of work was conducted by DD:

- Desktop study to assist in identification of potential contamination issues.
- Data from Environment Protection Authority.
- Data from the Protection of the Environment Operations Public Register (POEO).
- Review of soils and geological maps.
- Site Inspection by a representative from DD to ascertain current activities, and any visible signs of contamination.
- Collection of soil and water samples according to a judgmental sampling plan.
- Chemical analysis by a NATA accredited laboratory.
- Assessment of the results of the chemical analysis against the appropriate guidelines.
- Preparation of a Detailed Site Investigation Report detailing findings and recommendations in general accordance with the National Environment Protection Council (NEPC) National Environment Protection Measure (Assessment of Site Contamination) 2013 (NEMP ASC 2013) and NSW Office of Environment and Heritage Guidelines for Consultants Reporting on Contaminated Sites (OEH 2011).

3.0 SITE DESCRIPTION

The site is to be used for continued commercial/industrial use as a waste transfer station. The site is legally defined Lot 16 in Deposited Plan 717203 and is bounded by commercial developments to the south and west, railway lines followed by residential developments to the east and Henderson Road followed by commercial developments to the north. The site encompasses a total area of approximately 1.297ha.

At the time of the site inspection, the following observations were made:

- The site was being used for construction waste transfer;
- Processing plant equipment was used for creation of concrete blocks and aggregate;
- The main access to the property was along Kerr Road;
- Multiple stockpiles with construction waste and processed materials were identified;
- The driveway and hardstand areas are constructed concrete;
- Garden areas were exposed surrounding the car park hardstand and construction equipment stockpiles;
- Concrete and aggregate hardstand of the site were generally in good condition with minor cracking noticed;
- No surface standing water was noticed at the site;
- Some surface water was generated as part of onsite processes, but was recycled;
- There were no indicators of underground storage tanks within the site, however an above ground storage tank was identified; and
- No potential Asbestos Containing Material (ACM) was observed onsite.

4.0 SITE HISTORY

In order to ascertain the site history, a documentary review of past and present land use at the subject site and the surrounding area has been undertaken. Section 149 documentation supplied by Campbelltown City Council identified no ongoing/outstanding items requiring investigation.

4.1 Previous Land Use and Review of Historical Photographs

Aerial Photographs were obtained by this office from the NSW Department of Lands Office. The aerial photographs were reviewed to assess the likely past uses of the site with the findings summarised below;

1951 – The site appears to be vacant land. Grass and vegetation can be seen throughout the property. The site is bordered by vacant rural land.

1970 – No obvious change observed onsite. Residential dwellings have been constructed to the east.

1979 – Little change, some additional development has occurred to the east of the site.

1990 – Henderson Road has been constructed to the north. Commercial developments have been constructed to the west and south. Little change to the site.

2006 – Increased commercial development surrounding the site. A commercial structure has been constructed onsite, with adjacent hardstand.

2017 – Increased development onsite, with a large warehouse being constructed. The remaining area onsite has been converted to a concrete hardstand.

4.2 Historic land titles

A review of historical documents held at the NSW Department of Lands offices was conducted by Dirt Doctors to identify the current and previous land owners, and potential land uses. The results of the title search are summarised below;

Lot 16 in Deposited Plan 717203

Date of acquisition and held term	Registered proprietor(s) & occupations where available	Transfer Reference
2017-current	Kerr Road Investments Pty Ltd	AM422172N
2011-2017	Jeffrey, Suzanne, Trevor and Claire Baillie	AG529457A
2002-2011	Beth Lehem Pty Ltd	9017393F
1989-2002	Kyluk Pty Ltd	Y730352
1988-1989	Calane, Calicon, Kejala Pty Ltd	X675956
1981-1988	Ingleburn Holdings	398768

4.3 Zoning

The site is currently zoned as IN1 General Industrial under Campbelltown City Council's Local Environmental Plan 2015.

4.4 Search of Contaminated Land Management Register (NSW EPA)

A search of the NSW EPA Contaminated Land Management record of notices for the Ingleburn area cannot be found. No notices have been issued to the subject site. Furthermore, the listed sites on the register are situated at such a distance (greater than 200m), that they are not believed to have provided a potential contamination risk to the subject property.

4.5 Search of Protection of the Environment Operations Public Register (POEO) of Licensed and Delicensed Premises

A search of the POEO public register of licensed and delicensed premises (DECC) indicated no licensed premises within the immediate surrounding area of the site (within 200m). Furthermore, the listed sites on the register are situated at such a distance (greater than 200m), that they are not believed to have provided a potential contamination risk to the subject property. The site is listed on the POEO register due to its current use as a waste transfer facility.

4.6 Past Industrial Use

Historical review indicates that the site has been used for commercial/industrial use since the 2000's.

4.7 Previous Investigations

DD are not aware of any previous investigations on the site.

5.0 SITE CONDITION AND SURROUNDING ENVIRONMENT

Five (5) site investigations were conducted between 24th March 2018 and 27th April 2018. The field observations are summarized in the table below:

Table 1 – Summary of Field Observations

Parameter	Observation
Visible observations on site contamination	Minor staining of hardstand areas was observed.
Presence of drums, fill or waste materials	A 13,000L above ground diesel fuel tank was observed. Construction material stockpiles were identified.
Presence of fill	Fill material was evident across the site, beneath the concrete hardstand.
Flood potential	No potential flood prone area was identified during the investigation.
Odours	No odours were detected.

5.1 Sensitive Environments

The nearest sensitive environments are as follows:

- Residential properties 60m south east of the site;
- The closest environmental receptor is Bunbury Curran Creek which is located approximately 370 north west to the site;
- Recreational land Milton Park located 120m east of the site.

5.2 Topography

The site has an approximate average height of 25m above Australian Height Datum (AHD) and grades slightly north west towards Bunbury Curran Creek.

5.3 Geology

The 1:100,000 Penrith Geological information indicates that the site is underlain by Triassic aged Hawkesbury Sandstone comprising of Medium to very coarse-grained quartz sandstone, minor laminated mudstone and siltstone lenses.

5.4 Hydrogeology

A review of Bureau of Meteorology records for groundwater bores indicated no bores within a 500m radius of the subject site. Installed groundwater monitoring wells recorded groundwater levels at 9m below existing surface level.

5.5 Surface Water Flows

Based on site topography, surface water flows would be expected to flow north west towards Bunbury Curran Creek. At the time of inspection, no groundwater was detected, therefore no groundwater samples were collected.

5.6 Acid Sulfate Soils

Acid sulfate soil risk maps indicate that the subject site is situated in a region with no known occurrence of acid sulfate soils. Additionally, there were no visual signs of acid sulfate affected soils.

6.0 AREAS OF ENVIRONMENTAL CONCERN

Based on the site inspection, site history, and review of available information from the desktop study, the potential Areas of Environmental Concern (AEC) and their associated Contaminants of Concern (CoCs) for the site were identified. These are summarised in table 2 below;

Table 2 – Summary of Areas of Environmental Concern

Potential AEC	Potentially contaminating activity	Affected Media	Exposure Pathway	Receptors	Potential CoCs
Entire site	Importation of fill material from unknown origin	Soil and Groundwater	Direct Human Contact, Inhalation of Dust, ingestion of Groundwater	Human and Ecological	Metals, TPH, BTEX, PAH, OCP, PCB, Phenols, Asbestos
Car parking areas	Leaks from vehicles and AST	Soil and Groundwater	Direct Human Contact, Inhalation of Dust, ingestion of Groundwater	Human and Ecological	Metals, TPH, BTEX, PAH, Phenols

6.1 Potentially Affected Media

Due to the potential for contamination at the site, the following are considered to be potentially contaminated:

- Surface fill material within hardstand and surrounding garden areas;
- Underlying fill and natural material;
- Potential unidentified groundwater.

6.2 Potentially Receptors

Given the current land use of the site, DD concludes that the potential receptors include:

- Residents
- Site visitors
- Future site occupants
- Flora species within the garden areas of the site
- Bunbury Curran Creek
- Recreational land east of the site

6.3 Potentially Exposure Pathways

Based on the COPCs identified, potential exposure pathways at the site include:

- Potential dermal, inhalation and oral exposure to impacted soils present at shallow depths and/or accessible by future excavations at the site;
- Potential contaminant uptake by vegetation.

7.0 SAMPLING & ANALYSIS PLAN AND SAMPLING METHODOLOGY

Sampling and analysis was undertaken in order to assess the nature, location and likely distribution of any contamination present at the subject site specifically within areas identified in table 2 above, and also any potential risk posed to human health and/or the environment. Test results were compared to the relevant New South Wales Environment Protection Authority (NSW EPA) criteria.

7.1 Data Quality Objectives (DQO)

Data Quality Objectives (DQO) are qualitative and quantitative criteria that:

- (a) Clarify study objectives.
- (b) Define appropriate types of data to collect.
- (c) Specify the tolerable levels of potential decision making errors.

The purpose of the DQO process is to ensure that the data collection activities are focused on:

- (a) collecting the information needed to make decisions; and
- (b) answering the relevant questions leading up to such decisions.

7.2 DQO Process

The DQO process consists of seven distinct steps:

- **State the Problem-** As identified in table 2 above, the site has multiple potential sources of contamination. The problem is that, due to the potential contamination, an investigation is required to assess whether fill material and underlying natural soils have been contaminated by past/present activities.
- **Identify the Decision-** If contamination is detected, what is the extent of the impact, are levels detected above relevant assessment criteria, does the site pose a risk to human health and/or the environment, how can the risk be managed?
- **Identify Inputs to the Decision-** DD compared the results obtained from material sampled to:
 - NEPM 2013, HIL Table 1A, column D (HILs)
 - Environmental Investigation Levels (EILS)
 - Ecological Screening Levels (ESLs)
- **Define the Study Boundaries-** Site investigation was limited to the site boundaries with samples collected to a maximum depth of 0.8m below existing subgrade.

- **Develop a Decision Rule-** If levels of contamination exceed the relevant assessment criteria and pose a risk to human health and/or the environment, a remedial action will be required.
- **Specify Limits on Decision Errors-** Laboratory duplicate results, recovery of matrix spikes, RPD and laboratory quality assurance targets are to be met.
- **Optimize the Design for Obtaining Data-** Samples are to be collected within the proposed development excavation to assess potential contamination.

7.3 Sampling Undertaken

Twenty-five (25) boreholes were excavated at selected locations across the site with samples collected from the in-situ material (see Figure 1). Thirty (35) soil samples and two water samples were sent to a NATA accredited laboratory. Samples were selected based on site observations (odour, staining etc), and their position within the borehole (i.e. fill or natural).

7.4 Sampling Methodology

Samples were selected in a judgmental based sampling method. Each sample was collected from the auger using a stainless steel trowel, which had been decontaminated prior to use to prevent cross contamination occurring.

The samples were placed in 250g laboratory prepared glass jars which were capped using Teflon-sealed screw caps and then placed in a chilled container. The sample jars were transported to our office and placed in a refrigerator.

The samples were forwarded to SGS and ALS for analysis along with a Chain of Custody which was subsequently returned to confirm the receipt of all samples.

8.0 FIELD QUALITY ASSURANCE AND QUALITY CONTROL

The field sampling was undertaken by DD. An Environmental Consultant from DD sampled from each sampling location and supervised excavation of each borehole.

8.1 Decontamination Procedures

Soil samples were collected using a stainless steel trowel. The trowel was decontaminated between sampling events using the following procedure:

- 1) Soil was removed from the trowel by scrubbing with a brush
- 2) The trowel was washed with phosphate free detergent in a bucket
- 3) The trowel was then rinsed in distilled water in another bucket
- 4) Steps 2 and 3 were repeated
- 5) The trowel was then dried with a clean disposable towel

Rinsate samples were collected and analysed to confirm the successful decontamination process. Results of the rinsate analysis are attached to this report.

8.2 Duplicate Sampling

Duplicate samples were prepared in the field in order to determine the accuracy of the analytical programs.

Approximately twice the normal amount of soil was collected and placed in a decontaminated stainless steel bowl. The sample was split into 2 portions. One portion was placed in a 250g laboratory prepared glass jar, capped using Teflon-sealed screw cap and then labelled sample E22. The second portion was placed into a second identical jar, labelled E31, with a triplicate sample sent to ALS labelled E33. Duplicate sampling was repeated for samples E32 and E30 respectively.

The results of SGS certificates of analysis and ALS certificates of analysis are attached in Appendix B. The duplicate sample comparison indicates that the difference of laboratory test results produced by SGS and ALS are <30%, and therefore are of acceptable accuracy for this report.

Table 3 – Field Duplicates

Laboratory	QC Type	No. of samples	RPD %	QC Acceptance Criteria
SGS	Field Duplicates	4	All <30	Achieved
ALS	Field Triplicate	3	All <30	Achieved

A Chain of Custody (COC) for samples sent is attached showing the sampler, sampling time and date, receipt of samples at the laboratory, analyses to be performed and sample preservation method.

9.0 LABORATORY QUALITY ASSURANCE AND QUALITY CONTROL

9.1 Laboratory Accreditation

SGS Australia Pty Ltd and ALS Environmental Pty Ltd are accredited by the National Association of Testing Authorities (NATA) for the analysis carried out and are also accredited for compliance with ISO/IEC 17025.

9.2 Sample Holding Times

The holding times for samples at SGS and ALS presented in the table below, along with the allowable holding time, detailed in Schedule B (3) of the National Environment Protection (Assessment of Site Contamination) Measure (NEPM, 2013):

Table 4 – Holding Times

Laboratory	Analyte	Date Sampled	Date Received	Date of Extraction/ Analysis	Holding Time	Allowable Holding Time
SGS/ALS	Metals	04-04-18	05-04-18	10-05-18	6 days	6 months*
SGS	Total Petroleum Hydrocarbons (TPH), PAH, BTEX	04-04-18	05-04-18	09-04-18	5 days	14 days

Note 1: (*) Metals excludes Mercury which has a holding time of 28 days.

Note 2: The soil sample analyses were conducted within the relevant allowable holding time.

9.3 Analytical Methods Used and Practical Quantitation Limits

The analytical methods and practical quantitation limits (PQL)/level of reporting (LOR) used by SGS and ALS are indicated on the test certificates located in Appendix B.

9.4 Laboratory Quality Control

SGS and ALS carry out in-house Quality Control testing. This provides the laboratory information regarding the accuracy of testing carried out. The RPD (relative percent difference) results for SGS and ALS are within the acceptance criteria adopted by the laboratory (see QC attached). The results met the criteria and are tabulated below:

Table 5 – RPDs

Laboratory	QC Type	QC Outliners Occur	QC Acceptance Criteria
SGS/ALS	Laboratory Blanks	No	Achieved
SGS/ALS	Laboratory Duplicates	Yes, 12 items	Achieved
SGS/ALS	Matrix Spikes	Yes, 7 items	Achieved
SGS/ALS	Surrogate Spikes	No	Achieved

If RPDs are in excess of 30%, the higher concentration is adopted as a conservative measure to identify any contamination present onsite.

10.0 QUALITY ASSESSMENT AND QUALITY CONTROL DATA EVALUATION

Quality Assessment and Quality Control have been achieved through the following procedures.

10.1 Document Completeness

- Preparation of chain of custody records
- Laboratory confirmation of receipt of intact samples and relevant chain of custody
- Laboratory provision of NATA accredited results certificates

10.2 Data Completeness

- Analysis of contaminants of concern
- Duplicate and split samples within RPD recommended by NEPM

10.3 Data Representativeness

This is achieved by the following:

- Representative sampling of potential contaminants based on the site history and site activities
- Sufficient duplicate and split sample numbers complying with NEPM
- Adequate laboratory internal QA and QC methods complying with NEPM

10.4 Data Comparability

- Use of consistent sampling personnel and methodologies
- Use of NATA accredited laboratories
- Use of consistent test methods between selected laboratories
- Use of consistent test methods between samples
- Acceptable RPD between original samples and duplicate and split sample results.

10.5 Data Precision and Accuracy

- The use of NATA accredited laboratories – a requirement of which is adequately trained and experienced staff.
- The use of appropriate and validated laboratory test methods.
- The analysis of duplicate and split samples.
- Acceptable RPD for duplicate and split samples overall.
- Acceptable laboratory performance based on results of blank, matrix spike, control, duplicate and surrogate samples.

10.6 Data Evaluation

Based on the above information regarding quality assurance and quality control, it is considered that the quality objectives for field procedures and laboratory results are reliable for this assessment.

Table 6 – Data Evaluation Summary

Data Quality Objectives	Field Considerations	Laboratory Considerations	QC Acceptance Criteria
Completeness	Achieved	Achieved	Achieved
Comparability	Achieved	Achieved	Achieved
Representativeness	Achieved	Achieved	Achieved
Precision	Achieved	Achieved	Achieved
Accuracy	Achieved	Achieved	Achieved

11.0 BASIS FOR ASSESSMENT CRITERIA

The Assessment criteria used in this investigation have been obtained from the following guideline documents:

- The National Environment Protection (Assessment of Site Contamination) Measure (NEPM, 2013). This document presents risk-based Health Investigation Levels based on a variety of exposure settings for a number of organic and inorganic contaminants. To assess the risk to human health the results of the laboratory analysis are compared against the Health Investigation Levels (HIL) for the exposure setting; 'commercial/industrial' ('D') which is considered suitable for shops, offices, factories and industrial sites.
- Ecological Investigation Levels (EILs) for metals are applicable for assessing the risk to terrestrial ecosystems.
- Ecological Screening Levels (ESLs) for petroleum hydrocarbon compounds for assessing the risk of many species in the root and habitation zone.

Table 7 – Basis of Assessment

Contaminant	Assessment Criteria (mg/kg)			Guidelines
	Health Based Investigation Level (HIL'D')	Ecological Investigation Levels (EIL's)	Ecological Screening Levels (ESL) mg/kg	Groundwater Investigation Levels (GIL) µg/L
Inorganics (Heavy Metals)				
Arsenic (total)	3000	80		13
Cadmium	900	3		0.2
Chromium (vl)	3600	310		1
Copper	24000	85		1.3
Lead	1500	1800		4.4
Mercury	730	1		0.06
Nickel	6000	60		7
Zinc	400000	200		15
Organics				
TPH				
C ⁶ -C ¹⁰ /C ¹⁶ -C ³⁴	310/-		215/2500	
Benzene	4		95	
Toulene	-		135	
Ethylbenzene	-		185	
Xylene	-		95	
Phenol	240000			
PAH	4000			
OCP				
Aldrin + Dieldrin	45			
Chlordane	530			
Heptachlor	50			
DDD+DDE+DDT	3600			
OPP				
Diazinon	-			See Note (a)
Ethion	-			See Note (a)
Fenitrothion	-			See Note (a)
PCB	7			
Asbestos	0.01%	--	-	NEPM (2013)
Cyanide	1500			NEPM (2013)

Note (a): As yet a guideline relating to Organophosphate Pesticides (OPP) in soils has not been published. If contaminant levels had been detected a site specific threshold concentration would have been derived, however, as no contaminant levels were detected this was not required.

12.0 LABORATORY TEST RESULTS

Test results are tabulated and presented below (tables 8, and 9) along with the relevant assessment criteria. Laboratory test certificates are located in Appendix B

Table 8 – Analysis Solid Samples collected

Contaminant	Maximum Concentration mg/kg	Health Based Investigation Levels HIL 'D' mg/kg	Ecological Investigation Levels (EIL) mg/kg	Ecological Screening Levels (ESL) mg/kg	Absolute Maximum Analyte Criteria ENM Order 2014 mg/kg	Groundwater Investigation Levels (GIL) µg/L	95% Upper Confidence Limit (UCL)
Arsenic	10	3000	80	-	40	80	-
Cadmium	<0.3	900	3	-	1	3	-
Chromium	59	3600	310	-	150	310	-
Lead	52	1500	1800	-	100	1800	-
Mercury	<0.05	730	1	-	1	1	-
Nickel	46	6000	60	-	60	60	-
Zinc	130	400000	200	-	300	200	-
Copper	41	24000	85	-	200		-
Benzene	<0.1	4	-	95	0.5		-
Toluene	<0.1	NA	-	135	65		-
Ethyl Benzene	<0.1	NA	-	185	25		-
Xylenes (total)	<0.1	NA	-	95	NA		-
Benzo(a) Pyrene	<0.1	1.0	-	0.7	1		-
Polynuclear Aromatic Hydrocarbons (PAH's)	50	4000	-	-	40		-
Petroleum Hydrocarbon Components – C6-10	<25	310	-	215	NA		-
Petroleum Hydrocarbon Components – C16-34	<110	-	-	2500	500		-
Phenol	<0.1	240000	-	-	-		-
Pentachlorophenol	<0.5	660	-	-	-		-
Total Cresol	<1.5	25000	-	-	-		-
Total OC	<0.1	-	-	-	-		-
Total OP	<1.7	-	-	-	-		-
Total PCBs	<1	7	-	-	-		-

Table 9: Asbestos Test Results

Sample ID/Location	Asbestos Detected	Type of Asbestos
E1	No	NA
E2	No	NA
E3	No	NA
E4	No	NA
E5	No	NA
E6	No	NA
E7	No	NA
E8	No	NA
E9	No	NA
E10	No	NA
E11	No	NA
E12	No	NA
E14	No	NA
E15	No	NA
E16	No	NA
E18	No	NA
E19	No	NA
E20	No	NA
E21	No	NA
E23	No	NA
E24	No	NA
E25	No	NA
E26	No	NA
E27	No	NA
E28	No	NA
E29	No	NA
E30	No	NA
E31	No	NA
E32	No	NA
E34	No	NA
E35	No	NA

12.1 Heavy Metals

Heavy metal concentrations for Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel and Zinc are presented in Table 8. The concentrations of all metals were compared to the relevant assessment criteria (HILs D, and EIL). Metal concentrations were within the HILs D and EILs criteria, hence heavy metal levels on site are considered acceptable at the adopted exposure settings.

12.2 Total Petroleum Hydrocarbons (TPH), Polycyclic Aromatic Hydrocarbons (PAH) and BTEX

The TPH, PAH and BTEX concentrations, presented in Table 8, recorded levels below the acceptable relevant assessment criteria adopted. Therefore, the TPH, PAH and BTEX concentrations, present in the underlying soil layers are not considered likely to pose a risk to human health or the environment under a 'commercial/industrial' setting.

12.3 Asbestos Test Results

The Asbestos test results are presented in table 9. No asbestos was detected within (fill) samples obtained from site, hence indicating the site is not contaminated with asbestos.

12.4 Organochlorine Pesticides (OCP), Organophosphorus Pesticides (OPP), Cyanide and PCB

The OCP, OPP, Cyanide and PCB concentrations, presented in Table 8, were less than the relevant assessment criteria adopted, and therefore the chemical analyses indicate that the site is not contaminated with OCP, OPP, Cyanide or PCB.

13.0 SITE CHARACTERISATION

As can be seen in the previous Section 12.0 (Laboratory Test Results), the samples analyzed revealed levels below the adopted acceptance criteria and indicates the site poses no threat to human health and/or the environment.

14.0 CONCLUSION AND RECOMMENDATIONS

The conclusion of this Stage 2 Contamination Assessment is as follows:

- Objectives in section 2.0 have been achieved.
- The results of the chemical analyses for the soils on site have indicated no contamination is present.
- The data quality objectives of the report have been fulfilled.

Based on the scope of works undertaken, Dirt Doctors are of the opinion that the contaminants identified at the site pose no risk to human health and/or the environment for the exposure setting; 'commercial/industrial' ('D') which is considered suitable for shops, offices, factories and industrial sites.

This report was carried out in accordance with current NSW EPA guidelines, however, it is possible that contaminated soils may be present between sampling locations.

15.0 Limitations

DD has performed its services for this project in accordance with current industry codes and practices. When assessing the nature and extent of contamination, this type of investigation (as per our commission) is not designed or capable of locating all ground conditions, (which can vary even over short distances).

The advice given in this report is based on the assumption that the test results are representative of the overall ground conditions. However, it should be noted that actual conditions in some parts of the site might differ from those found. If excavations reveal ground conditions significantly different from those shown in our findings, DD must be consulted.

The actual presence of contaminated material at the site may potentially differ from that referred to or inferred herein, since no sampling program, no matter how complete, can reveal all anomalies and hot spots that may be present. Furthermore, our opinions and judgments expressed herein, which are based on our analysis of current industry codes and practices, should not be interpreted as legal opinions.

The scope and the period of DD services are described in the report and are subject to restrictions and limitations. DD did not perform a complete assessment of all possible conditions or circumstances that may exist at the Site. If a service is not expressly indicated, do not assume it has been provided. If a matter is not addressed, do not assume that any determination has been made by DD in regards to it. Where data has been supplied by the client or a third party, it is assumed that the information is correct unless otherwise stated. No responsibility is accepted by DD for incomplete or inaccurate data supplied by others.

Any drawings or figures presented in this report should be considered only as pictorial evidence of our work. Therefore, unless otherwise stated, any dimensions should not be used for accurate calculations or dimensioning.

Should you have any queries, please do not hesitate to contact the undersigned.

For and on behalf of
Dirt Doctors Pty Ltd

A handwritten signature in dark ink, appearing to read 'M. Tofler' followed by a stylized flourish.

M. Tofler
Principal

References

Contaminated Sites – Guidelines for Assessing Service Stations. NSW Environment Protection Authority (EPA) 1994

Contaminated Sites – Guidelines for Consultants Reporting on Contaminated Sites. NSW Environment Protection Authority (EPA) 2011.

Contaminated Sites – Sampling Design Guidelines. NSW Environment Protection Authority (EPA) 1995

National Environment Protection (Assessment of Site Contamination) Measure – National Environmental Protection Council 2013.

AS4482.1-2005 Guide to the Sampling and Investigation of Potentially Contaminated Soil Part 1

View from Kerr Road



Site Entry and Weigh Bridge



Vehicle Hardstand and Car Park



Construction Materials Storage



Stormwater Drain with Controls Installed



Processing Equipment and Material Storage



Rear of Warehouse



Vehicle Was Down Bay



Diesel AST



Diesel AST with no Staining



Diesel AST Placard



Processing Plant Equipment



Side of Warehouse, Surface Water



Construction Materials Storage



Minor Cracking of Hardstand



Equipment Storage



Construction Material Storage, Waiting for Processing



Chemical Storage



Chemical Storage



Construction Materials Storage



Inside Warehouse, Equipment Storage



Inside Warehouse, Manufacturing Area



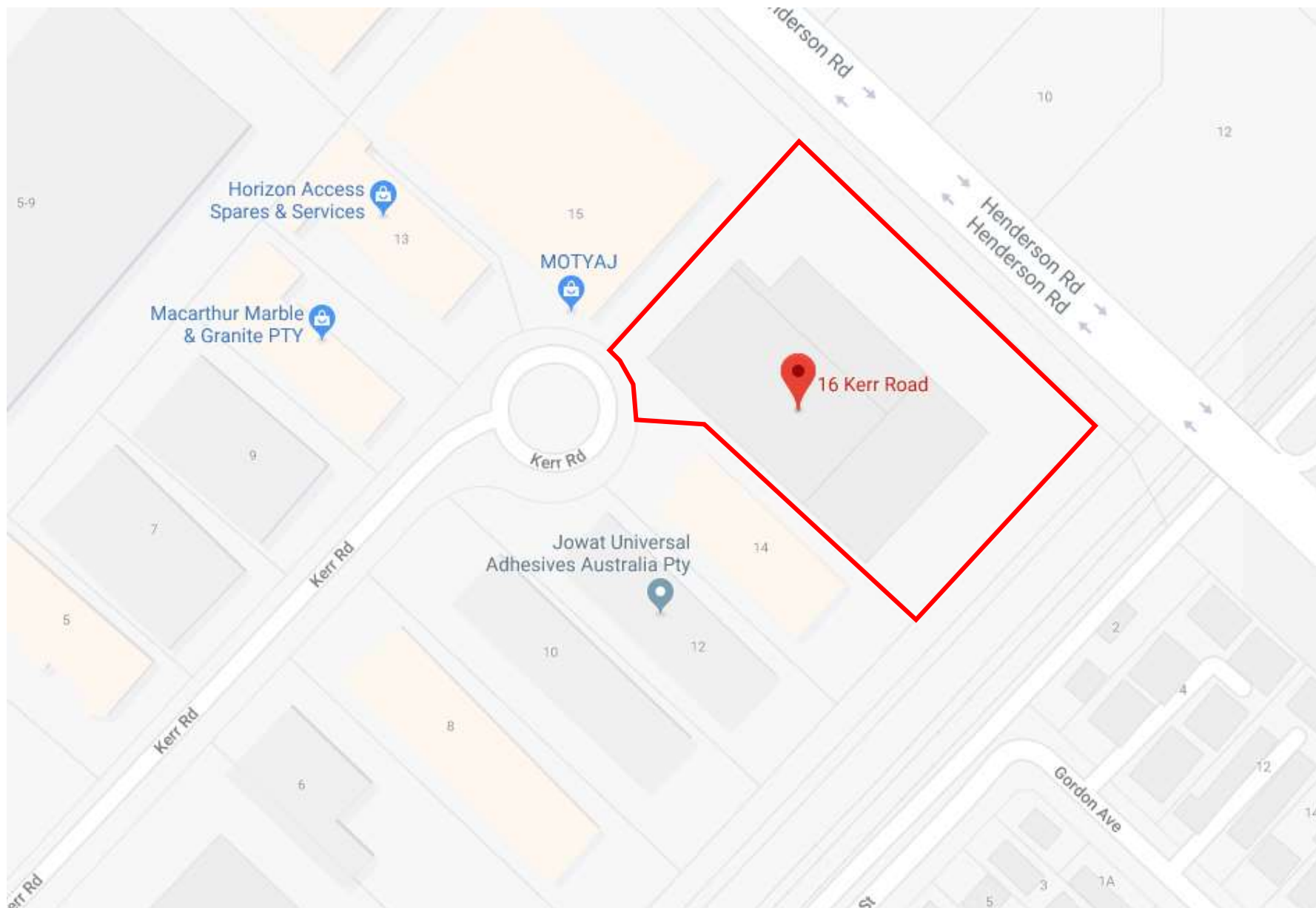
APPENDIX A



FIGURES

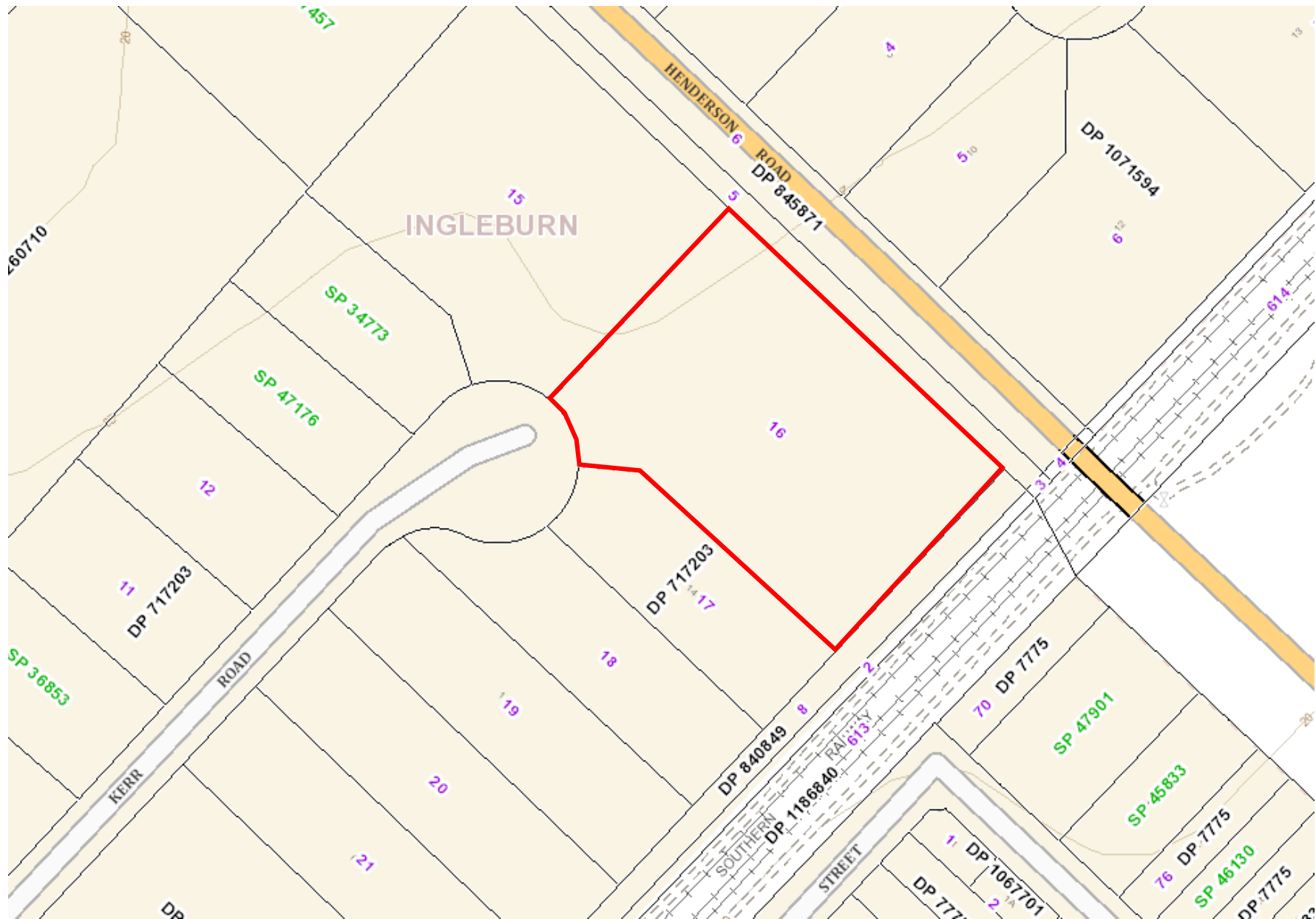
Bore Hole Locations and Plans





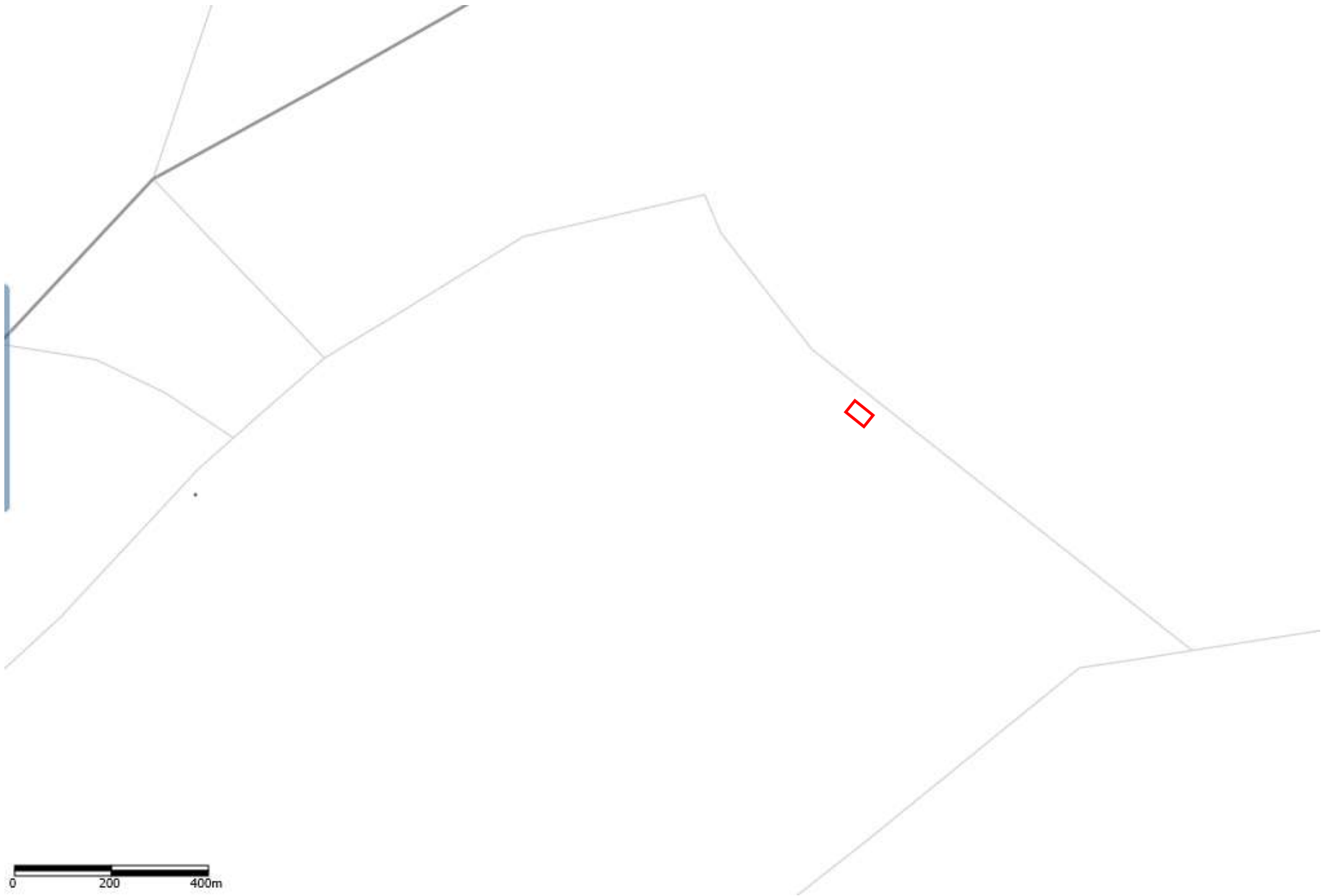
	Borehole Location Monitoring Well	Bulk Recovery Solutions		Job No.	DDE-199
		16 Kerr Rd, Ingleburn NSW		Drawing No.	DDE-199_1
		Drawn By	MT	Ref No.	
		Approved By	MT	Scale	N.T.S.




	 Subject Site	Bulk Recovery Solutions		Job No.	DDE-199
		16 Kerr Rd, Ingleburn NSW		Drawing No.	DDE-199_1a
		Drawn By	MT	Ref No.	
		Approved By	MT	Scale	N.T.S.



	 Subject Site	Bulk Recovery Solutions		Job No.	DDE-199
		16 Kerr Rd, Ingleburn NSW		Drawing No.	DDE-199_1b
		Drawn By	MT	Ref No.	
		Approved By	MT	Scale	N.T.S.

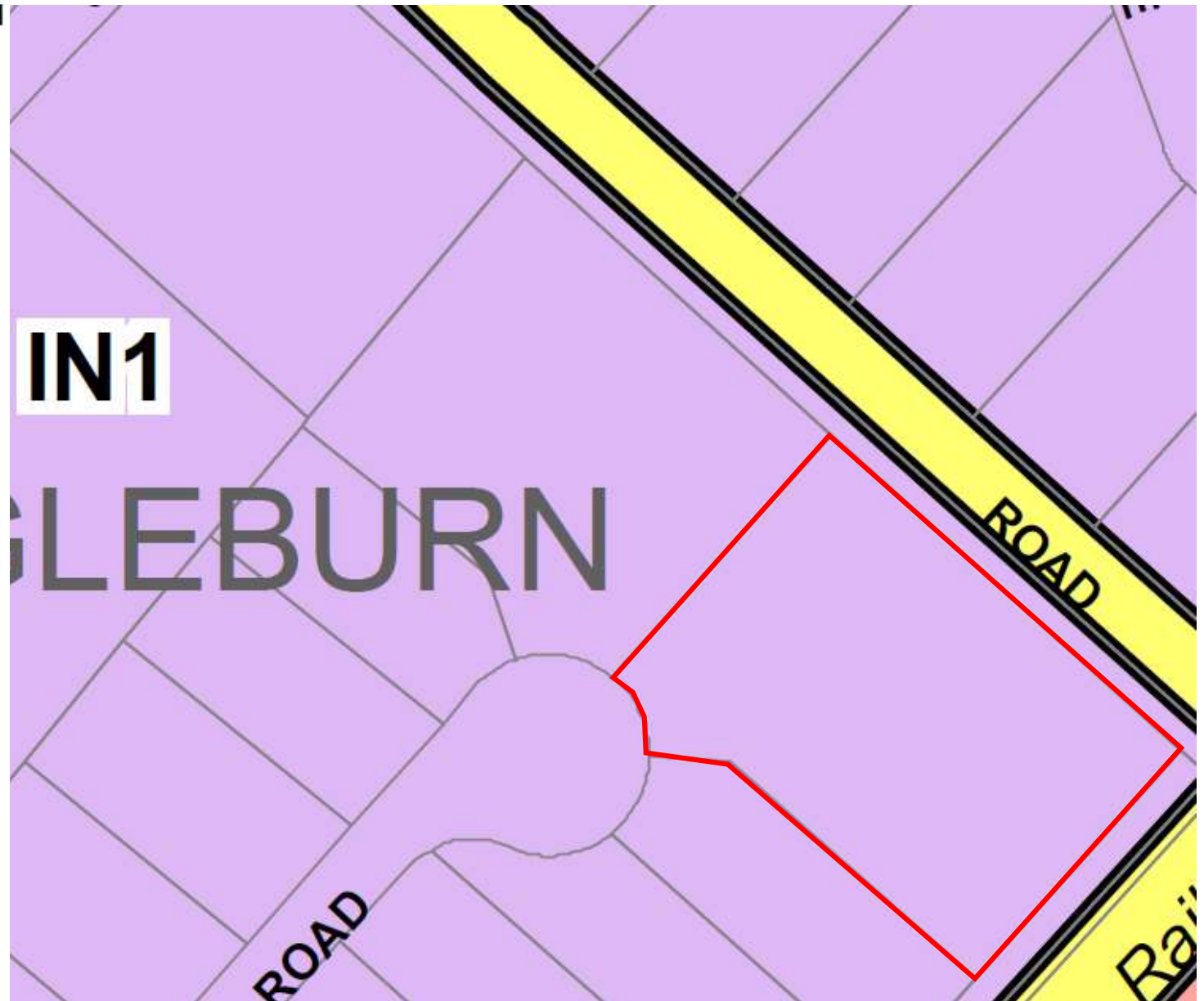




	<div> <div>●</div> Bore Locations </div> <div> <div>○</div> Bore Locations within 500m </div> <div> <div>□</div> Subject Site </div>	Bulk Recovery Solutions		Job No.	DDE-199
		16 Kerr Rd, Ingleburn NSW		Drawing No.	DDE-199_1c
		Drawn By	MT	Ref No.	
		Approved By	MT	Scale	N.T.S.

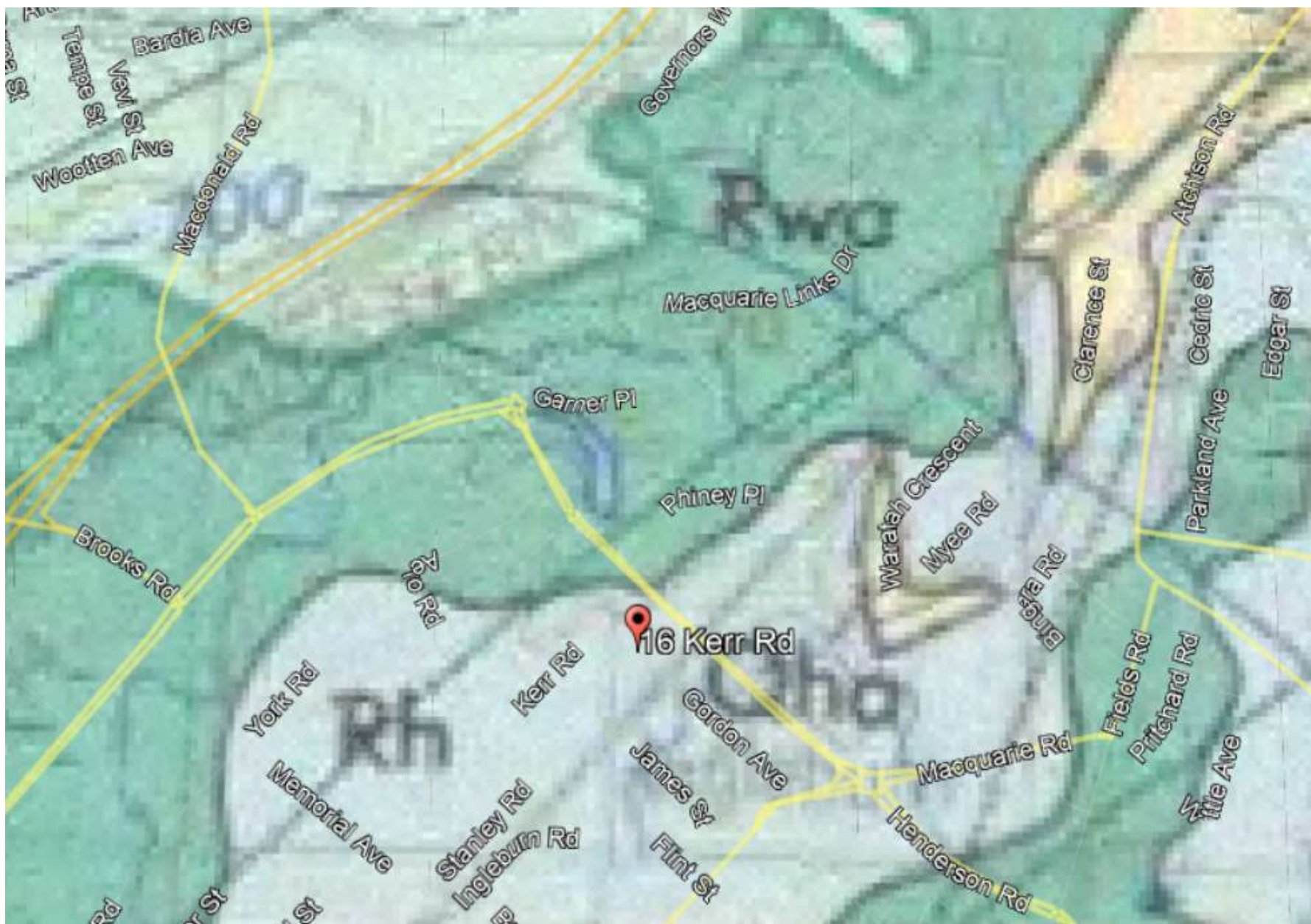
Land Zoning Map - Sheet LZN_011


Zone

- B1 Neighbourhood Centre
- B2 Local Centre
- B3 Commercial Core
- B4 Mixed Use
- B5 Business Development
- E1 National Parks and Nature Reserves
- E2 Environmental Conservation
- E3 Environmental Management
- E4 Environmental Living
- IN1 General Industrial
- IN2 Light Industrial
- R2 Low Density Residential
- R3 Medium Density Residential
- R4 High Density Residential
- R5 Large Lot Residential
- RE1 Public Recreation
- RE2 Private Recreation
- RU2 Rural Landscape
- RU5 Village
- RU6 Transition
- SP1 Special Activities
- SP2 Infrastructure
- W1 Natural Waterways
- DM Deferred Matter
- SEDP SEPP (State Significant Precincts) 2005
Edmondson Park South
- SWG South West Growth Centre



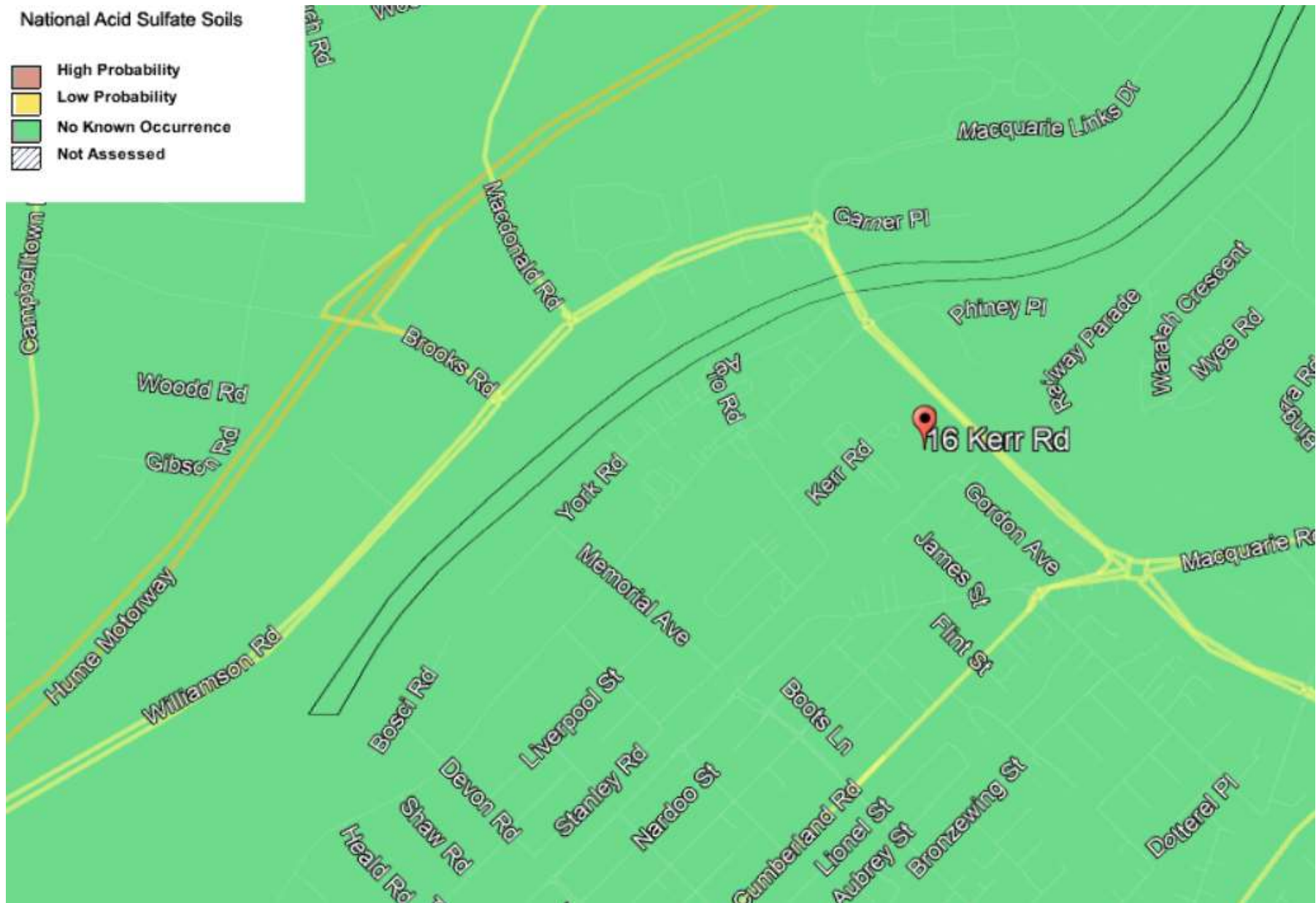
	 Subject Site	Bulk Recovery Solutions		Job No.	DDE-199
		16 Kerr Rd, Ingleburn NSW		Drawing No.	DDE-199_1d
		Drawn By	MT	Ref No.	
		Approved By	MT	Scale	N.T.S.



		Bulk Recovery Solutions		Job No.	DDE-199
		16 Kerr Rd, Ingleburn NSW		Drawing No.	DDE-199_1e
		Drawn By	MT	Ref No.	
		Approved By	MT	Scale	N.T.S.

National Acid Sulfate Soils

- High Probability
- Low Probability
- No Known Occurrence
- Not Assessed



Search results

Your search for: POEO Licences with the following criteria:

LGA - CAMPBELLTOWN

returned 50 results

Number	Name	Location	Type	Status	Issued date
20525	ENVIRONMENTAL TREATMENT SOLUTIONS PTY LTD	7 Pembury Road, MINTO, NSW 2566	POEO licence	Issued	07 Apr 2016
2489	CONSOLIDATED EXTRUSIONS MANAGEMENT PTY LTD	18 WILLIAMSON ROAD, INGLEBURN, NSW 2565	POEO licence	Surrendered23 Nov 1999	
20062	CARGILL MALT ASIA PACIFIC PTY LTD	11 STONNY BATTER ROAD, MINTO, NSW 2566	POEO licence	Issued	08 May 2012
2128	FULTON HOGAN CONSTRUCTION PTY LTD	117 AIRDS ROAD, MINTO, NSW 2566	POEO licence	No longer in force	26 Jun 2000
20075	CLEANWAY ENVIRONMENTAL SERVICES PTY LTD	12 Shaw Road, INGLEBURN, NSW 2565	POEO licence	Issued	12 Jun 2012
2061	AUSTRALIAN PET BRANDS PTY LTD	12 WILLIAMSON ROAD, INGLEBURN, NSW 2565	POEO licence	Issued	19 Apr 2000
20538	MINTO RECYCLING PTY LTD	13 Pembury road, MINTO, NSW 2566	POEO licence	Issued	25 Nov 2015
22824	TOYO TYRE & RUBBER AUSTRALIA LIMITED	137-149 AIRDS ROAD, MINTO, NSW 2566	POEO licence	Issued	14 Feb 2008
11690	AUSTRALIAN RETRO CHEMICAL STORAGE PTY LTD	14 WILLIAMSON ROAD, INGLEBURN, NSW 2565	POEO licence	Issued	23 Oct 2002
5963	FLINT GROUP AUSTRALIA PTY LTD	14A WILLIAMSON ROAD, INGLEBURN, NSW 2565	POEO licence	Surrendered19 Jan 2000	
20797	BULK RECOVERY SOLUTIONS PTY LTD	16 KERR ROAD, INGLEBURN, NSW 2565	POEO licence	Issued	10 Oct 2019
2128	BOSCO MANUFACTURING PTY LTD	17-23 AIRDS ROAD, MINTO, NSW 2566	POEO licence	Surrendered28 Sep 2000	
5831	UNILEVER AUSTRALIA TRADING LIMITED	2 Magnum Place, MINTO, NSW 2566	POEO licence	Issued	14 Feb 2000
12041	REDOX PTY LTD	2 SWETTERHAM ROAD, MINTO, NSW 2566	POEO licence	Issued	13 Jan 2004
5971	ECO-CHEM PTY, LTD.	2/19 AERO ROAD, INGLEBURN, NSW 2565	POEO licence	Surrendered31 Mar 2000	
12129	LIPA PHARMACEUTICALS LTD	21 REAGHS FARM ROAD, MINTO, NSW 2566	POEO licence	Issued	08 Jun 2004
1292	LE-RO DIECASTERS PTY LTD	24-26 AIRDS ROAD, MINTO, NSW 2566	POEO licence	Surrendered13 Aug 2000	
4244	FOAMCO INDUSTRIES PTY LIMITED	25-27 Pembury Road, MINTO, NSW 2566	POEO licence	Issued	09 May 2000
11318	RESOURCE RECYCLING TECHNOLOGIES PTY, LTD.	18 Williamson Road, INGLEBURN, NSW 2565	POEO licence	Surrendered22 Oct 2001	
20637	DIRECT GROUP INDUSTRIES PTY LIMITED	18 WILLIAMSON ROAD, INGLEBURN, NSW 2565	POEO licence	Issued	18 Mar 2016

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19 July 2018

Scheduled Activity	Fee Based Activity	Scale
Waste processing (non-thermal treatment)	Non-thermal treatment of general waste	Any annual processing capacity
Resource recovery	Recovery of general waste	Any general waste recovered
Waste storage	Waste storage - other types of waste	Any other types of waste stored

A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details

BULK RECOVERY SOLUTIONS INGLEBURN

16 KERR ROAD

INGLEBURN

NSW 2565

LOT 16 DP 717203



Bulk Recovery Solutions
16 Kerr Rd, Ingleburn NSW

Drawn By

MT

Approved By

MT

Job No.

DDE-199

Drawing No.

DDE-199_1g

Ref No.

Scale

N.T.S.

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.1						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5	Slab	Concrete Hardstand			
		Fill	Sandy Clay, brown, light brown, slightly moist			
		Nat	Silty Clay, brown slightly moist			
	1					
	1.5		End 1.3m			
	2					
	2.5					
	3					
	3.5					
Method: Ute Mounted Drill Rig Date: 22-06-18 Logged and Drilled by: MT						

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.2						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5	Slab	Concrete Hardstand			
		Fill	Sandy Clay, brown, light brown, slightly moist			
		Nat	Silty Clay, brown slightly moist			
	1					
	1.3		End 1.3m			
	1.5					
	2					
	2.5					
	3					
	3.5					

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.3						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5	Slab	Concrete Hardstand			
		Fill	Sandy Clay, brown, light brown, slightly moist			
		Nat	Silty Clay, brown, light brown slightly moist - moist			
	1		End 1.2m			
	1.5					
	2					
	2.5					
	3					
	3.5					

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.4						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5	Slab	Concrete Hardstand			
		Fill	Sandy Gravel, light brown, slightly moist			
		Nat	Silty Clay, brown slightly moist			
	1					
	1.5		End 1.3m			
	2					
	2.5					
	3					
	3.5					

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.5						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5	Slab	Concrete Hardstand			
		Fill	Sandy Gravel, light brown, slightly moist			
		Nat	Silty Clay, light brown, brown slightly moist			
	1					
	1.5		End 1.4m			
	2					
	2.5					
	3					
	3.5					

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.6						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5	Slab	Concrete Hardstand			
		Fill	Sandy Gravel, light brown, slightly moist			
		Nat	Silty Clay, brown slightly moist			
	1					
	1.3		End 1.3m			
	1.5					
	2					
	2.5					
	3					
	3.5					

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.7						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5	Slab	Concrete Hardstand			
		Fill	Sandy Gravelly Clay, light brown, brown, slightly moist			
		Nat	Silty Clay, brown slightly moist			
	1					
	1.5		End 1.2m			
	2					
	2.5					
	3					
	3.5					

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.8						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5	Slab	Concrete Hardstand			
		Fill	Sandy Gravel, light brown, slightly dry to moist			
		Nat	Silty Gravelly Clay, light brown, brown slightly moist			
	1		End 1.1m			
	1.5					
	2					
	2.5					
	3					
	3.5					

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.9						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5	Slab	Concrete Hardstand			
		Fill	Sandy Gravelly Clay, light brown, brown, slightly moist			
		Nat	Silty Clay, brown slightly moist			
	1					
	1.5		End 1.2m			
	2					
	2.5					
	3					
	3.5					

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.10						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5	Slab	Concrete Hardstand			
		Fill	Sandy Gravelly Clay, brown, light brown, slightly moist			
		Nat	Silty Clay, brown, light brown slightly moist - moist			
	1		End 1.2m			
	1.5					
	2					
	2.5					
	3					
	3.5					

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.11						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5	Slab	Concrete Hardstand			
		Fill	Sandy Gravelly Clay, brown, light brown, slightly moist			
		1	Nat			
	1.5		End 1.5m			
	2					
	2.5					
	3					
	3.5					

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.12						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5	Slab	Concrete Hardstand			
		Fill	Sandy Gravelly Clay, brown, light brown, slightly moist			
		Nat	Silty Clay, brown, light brown slightly moist - moist			
	1					
	1.5		End 1.5m			
	2					
	2.5					
	3					
	3.5					

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.13						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5	Slab	Concrete Hardstand			
		Fill	Sandy Clay, brown, light brown, slightly moist			
		Nat	Silty Clay, brown slightly moist			
	1					
	1.5		End 1.3m			
	2					
	2.5					
	3					
	3.5					

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.14						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5	Slab	Concrete Hardstand			
		Fill	Sandy Clay, brown, light brown, slightly moist			
		Nat	Silty Clay, brown slightly moist			
	1	End 1.1m				
	1.5					
	2					
	2.5					
	3					
	3.5					

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.15						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5	Slab	Concrete Hardstand			
		Fill	Sandy Clay, brown, light brown, slightly moist			
		Nat	Silty Clay, brown slightly moist			
	1		End 1.1m			
	1.5					
	2					
	2.5					
	3					
	3.5					

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.16						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5	Slab	Concrete Hardstand			
		Fill	Sandy Clay, brown, light brown, slightly moist			
		Nat	Silty Clay, brown slightly moist			
	1					
	1.5		End 1.2m			
	2					
	2.5					
	3					
	3.5					

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.17						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5 1	Slab	Concrete Hardstand			
		Fill	Silty Sandy Gravel, brown, light brown, slightly moist			
		Nat	Silty Gravelly Clay, brown slightly moist			
	1.5 2 2.5 3 3.5		End 1.4m			

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.5						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5	Slab	Concrete Hardstand			
		Fill	Sandy Gravel, light brown, slightly moist			
		Nat	Silty Clay, light brown, brown slightly moist			
	1					
	1.5		End 1.4m			
	2					
	2.5					
	3					
	3.5					

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.19						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5 1	Slab	Concrete Hardstand			
		Fill	Silty Sandy Gravel, brown, light brown, slightly moist			
		Nat	Silty Gravelly Clay, brown slightly moist			
	1.5 2 2.5 3 3.5		End 1.4m			

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.20						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5 1	Slab	Concrete Hardstand			
		Fill	Silty Sandy Gravelly Clay, brown, light brown, slightly moist			
		Nat	Silty Gravelly Clay, brown slightly moist			
	1.5 2 2.5 3 3.5		End 1.4m			

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.21						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5	Slab	Concrete Hardstand			
		Fill	Silty Sandy Gravelly Clay, brown, light brown, slightly moist			
		Nat	Silty Gravelly Clay, brown slightly moist			
	1					
	1.5		End 1.2m			
	2					
	2.5					
	3					
	3.5					

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.22						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5	Slab	Concrete Hardstand			
		Fill	Silty Sandy Gravel, brown, slightly moist			
		Nat	Silty Gravelly Clay, brown slightly moist			
	1					
	1.5		End 1.4m			
	2					
	2.5					
	3					
	3.5					

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.23						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5 1	Slab	Concrete Hardstand			
		Fill	Silty Sandy Gravel, brown, light brown, slightly moist			
		Nat	Silty Gravelly Clay, brown slightly moist			
	1.5 2 2.5 3 3.5		End 1.4m			

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.24						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5 1	Slab	Concrete Hardstand			
		Fill	Silty Sandy Gravel, brown, light brown, slightly moist			
		Nat	Silty Clay traces of gravel, brown, light brown, dry to slightly moist			
	1.5 2 2.5 3 3.5	End 1.2m				
	Method: Ute Mounted Drill Rig Date: 22-06-18 Logged and Drilled by: MT					

SITE LOCATION: 16 Kerr Rd, Ingleburn NSW						
BORE HOLE No.25						
WATER	DEPTH (m)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION <small>(SOIL TYPE, COLOUR, MOISTURE, CONSISTENCY)</small>	Pocket Penetrometer kPa	DCP	REMARKS
NIL	0.5	Slab	Concrete Hardstand			
		Fill	Silty Sandy Gravel, brown, light brown, slightly moist			
		Nat	Silty Clay traces of gravel, brown, light brown, dry to slightly moist			
	1					
	1.5		End 1.2m			
	2					
	2.5					
	3					
	3.5					

Method: Ute Mounted Drill Rig
 Date: 22-06-18
 Logged and Drilled by: MT

APPENDIX B

LABORATORY TEST CERTIFICATES

APPENDIX C

CLIENT DETAILS

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BUXTON NSW 2571

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Facsimile (Not specified)
Email MITCH@DIRTDOCTORS.COM.AU
Project DDE-199
Order Number (Not specified)
Samples 2

LABORATORY DETAILS

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Laboratory SGS Alexandria Environmental
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Alexandria NSW 2015

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Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com
SGS Reference SE177265 R0
Date Received 27/3/2018
Date Reported 28/3/2018

COMMENTS

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

A portion of the sample supplied has been sub-sampled for asbestos according to SGS In-house procedures. We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied. SGS Environmental Services recommends supplying approximately 50-100g of sample in a separate container.

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

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES



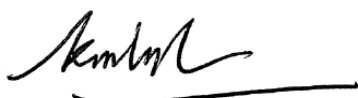
Akheequear Beniamene
Chemist



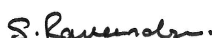
Bennet Lo
Senior Organic Chemist/Metals Chemist



Huong Crawford
Production Manager



Ly Kim Ha
Organic Section Head



Ravee Sivasubramaniam
Hygiene Team Leader



Shane McDermott
Inorganic/Metals Chemist

VOC's in Soil [AN433] Tested: 28/3/2018

PARAMETER	UOM	LOR	E1	E2
			SOIL - 24/3/2018 SE177265.001	SOIL - 24/3/2018 SE177265.002
Benzene	mg/kg	0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 28/3/2018

PARAMETER	UOM	LOR	E1	E2
			SOIL - 24/3/2018 SE177265.001	SOIL - 24/3/2018 SE177265.002
TRH C6-C9	mg/kg	20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 28/3/2018

PARAMETER	UOM	LOR	E1	E2
			SOIL - 24/3/2018 SE177265.001	SOIL - 24/3/2018 SE177265.002
TRH C10-C14	mg/kg	20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 28/3/2018

PARAMETER	UOM	LOR	E1	E2
			SOIL - 24/3/2018 SE177265.001	SOIL - 24/3/2018 SE177265.002
Naphthalene	mg/kg	0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8

Total Phenolics in Soil [AN289] Tested: 28/3/2018

			E1	E2
			SOIL	SOIL
			-	-
			24/3/2018	24/3/2018
PARAMETER	UOM	LOR	SE177265.001	SE177265.002
Total Phenols	mg/kg	0.1	<0.1	<0.1

pH in soil (1:5) [AN101] Tested: 28/3/2018

			E1	E2
			SOIL	SOIL
			-	-
			24/3/2018	24/3/2018
			SE177265.001	SE177265.002
PARAMETER	UOM	LOR		
pH	pH Units	0.1	7.8	6.6

Conductivity and TDS by Calculation - Soil [AN106] Tested: 28/3/2018

			E1	E2
			SOIL	SOIL
			-	-
			24/3/2018	24/3/2018
			SE177265.001	SE177265.002
PARAMETER	UOM	LOR		
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	350	180

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 28/3/2018

PARAMETER	UOM	LOR	E1	E2
			SOIL - 24/3/2018 SE177265.001	SOIL - 24/3/2018 SE177265.002
Arsenic, As	mg/kg	3	3	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	8.5	14
Copper, Cu	mg/kg	0.5	6.7	2.6
Lead, Pb	mg/kg	1	12	21
Nickel, Ni	mg/kg	0.5	4.4	1.0
Zinc, Zn	mg/kg	0.5	32	25



ANALYTICAL RESULTS

SE177265 R0

Mercury in Soil [AN312] Tested: 28/3/2018

			E1	E2
			SOIL	SOIL
			-	-
			24/3/2018	24/3/2018
PARAMETER	UOM	LOR	SE177265.001	SE177265.002
Mercury	mg/kg	0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 28/3/2018

			E1	E2
			SOIL	SOIL
			-	-
			24/3/2018	24/3/2018
			SE177265.001	SE177265.002
PARAMETER	UOM	LOR		
% Moisture	%w/w	0.5	5.6	11

Fibre Identification in soil [AN602] Tested: 28/3/2018

			E1	E2
			SOIL	SOIL
			-	-
			24/3/2018	24/3/2018
			SE177265.001	SE177265.002
PARAMETER	UOM	LOR		
Asbestos Detected	No unit	-	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01

METHOD

METHODOLOGY SUMMARY

- AN002** The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
- AN040/AN320** A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
- AN040** A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
- AN101** pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode and is calibrated against 3 buffers purchased commercially. For soils, sediments and sludges, an extract with water (or 0.01M CaCl₂) is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
- AN106** Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos/cm or µS/cm @ 25°C. For soils, an extract with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Salinity can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. Reference APHA 2510 B.
- AN289** Analysis of Total Phenols in Soil Sediment and Water: Steam distillable phenols react with 4-aminoantipyrine at pH 7.9±0.1 in the presence of potassium ferricyanide to form a coloured antipyrine dye analysed by Discrete Analyser. Reference APHA 5530 B/D.
- 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 Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
- AN403** The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
- AN420** (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
- AN420** Carcinogenic PAHs may be expressed as Benzo(a)pyrene equivalents by applying the BaP toxicity equivalence factor (NEPM 1999, June 2013, B7). These can be reported as the individual PAHs and as a sum of carcinogenic PAHs. The sum is reported three ways, the first assuming all <LOR results are zero, the second assuming all <LOR results are half the LOR and the third assuming all <LOR results are the LOR.
- AN433** VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC's are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
- AN602** Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
- AN602** Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
- AN602** AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

AN602

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

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

FOOTNOTES

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

Samples 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 criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : <http://www.sgs.com.au/~media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf>

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Project DDE-199
Order Number (Not specified)
Samples 2

LABORATORY DETAILS

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Email au.environmental.sydney@sgs.com
SGS Reference SE177265 R0
Date Received 27 Mar 2018
Date Reported 28 Mar 2018

COMMENTS

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

A portion of the sample supplied has been sub-sampled for asbestos according to SGS In-house procedures. We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied. SGS Environmental Services recommends supplying approximately 50-100g of sample in a separate container.

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

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES



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Chemist



Bennet Lo
Senior Organic Chemist/Metals Chemis



Huong Crawford
Production Manager



Ly Kim Ha
Organic Section Head



Ravee Sivasubramaniam
Hygiene Team Leader



Shane McDermott
Inorganic/Metals Chemist



ANALYTICAL REPORT

SE177265 R0

RESULTS

Fibre Identification in soil

Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE177265.001	E1	Soil	71g Clay,Sand,Rocks	24 Mar 2018	No Asbestos Found	<0.01
SE177265.002	E2	Soil	126g Clay,Sand,Rocks	24 Mar 2018	No Asbestos Found	<0.01

METHOD

METHODOLOGY SUMMARY

AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states: "Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	<p>The sample can be reported "no asbestos found at the reporting limit of 0.1 g/kg" (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if-</p> <ul style="list-style-type: none"> (a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres); (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg; and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

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

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

Sampled by the client.

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

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

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

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

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : <http://www.sgs.com.au/~media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf>

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STATEMENT OF QA/QC PERFORMANCE

SE177265 R0

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Project DDE-199
Order Number (Not specified)
Samples 2

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SGS Reference SE177265 R0
Date Received 27 Mar 2018
Date Reported 28 Mar 2018

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 and was supplied by the Client.
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	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item
	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item
Matrix Spike	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item

SAMPLE SUMMARY

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.

Conductivity and TDS by Calculation - Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E1	SE177265.001	LB144520	24 Mar 2018	27 Mar 2018	31 Mar 2018	28 Mar 2018	31 Mar 2018	28 Mar 2018
E2	SE177265.002	LB144520	24 Mar 2018	27 Mar 2018	31 Mar 2018	28 Mar 2018	31 Mar 2018	28 Mar 2018

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E1	SE177265.001	LB144490	24 Mar 2018	27 Mar 2018	24 Mar 2019	28 Mar 2018	24 Mar 2019	28 Mar 2018
E2	SE177265.002	LB144490	24 Mar 2018	27 Mar 2018	24 Mar 2019	28 Mar 2018	24 Mar 2019	28 Mar 2018

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E1	SE177265.001	LB144499	24 Mar 2018	27 Mar 2018	21 Apr 2018	28 Mar 2018	21 Apr 2018	28 Mar 2018
E2	SE177265.002	LB144499	24 Mar 2018	27 Mar 2018	21 Apr 2018	28 Mar 2018	21 Apr 2018	28 Mar 2018

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E1	SE177265.001	LB144479	24 Mar 2018	27 Mar 2018	07 Apr 2018	28 Mar 2018	02 Apr 2018	28 Mar 2018
E2	SE177265.002	LB144479	24 Mar 2018	27 Mar 2018	07 Apr 2018	28 Mar 2018	02 Apr 2018	28 Mar 2018

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
E1	SE177265.001	LB144496	24 Mar 2018	27 Mar 2018	07 Apr 2018	28 Mar 2018	07 May 2018	28 Mar 2018
E2	SE177265.002	LB144496	24 Mar 2018	27 Mar 2018	07 Apr 2018	28 Mar 2018	07 May 2018	28 Mar 2018

pH in soil (1:5)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E1	SE177265.001	LB144520	24 Mar 2018	27 Mar 2018	31 Mar 2018	28 Mar 2018	29 Mar 2018	28 Mar 2018
E2	SE177265.002	LB144520	24 Mar 2018	27 Mar 2018	31 Mar 2018	28 Mar 2018	29 Mar 2018	28 Mar 2018

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E1	SE177265.001	LB144484	24 Mar 2018	27 Mar 2018	07 Apr 2018	28 Mar 2018	07 Apr 2018	28 Mar 2018
E2	SE177265.002	LB144484	24 Mar 2018	27 Mar 2018	07 Apr 2018	28 Mar 2018	07 Apr 2018	28 Mar 2018

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
E1	SE177265.001	LB144480	24 Mar 2018	27 Mar 2018	20 Sep 2018	28 Mar 2018	20 Sep 2018	28 Mar 2018
E2	SE177265.002	LB144487	24 Mar 2018	27 Mar 2018	20 Sep 2018	28 Mar 2018	20 Sep 2018	28 Mar 2018

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
E1	SE177265.001	LB144496	24 Mar 2018	27 Mar 2018	07 Apr 2018	28 Mar 2018	07 May 2018	28 Mar 2018
E2	SE177265.002	LB144496	24 Mar 2018	27 Mar 2018	07 Apr 2018	28 Mar 2018	07 May 2018	28 Mar 2018

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E1	SE177265.001	LB144478	24 Mar 2018	27 Mar 2018	07 Apr 2018	28 Mar 2018	07 May 2018	28 Mar 2018
E2	SE177265.002	LB144478	24 Mar 2018	27 Mar 2018	07 Apr 2018	28 Mar 2018	07 May 2018	28 Mar 2018

Volatile Petroleum Hydrocarbons in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E1	SE177265.001	LB144478	24 Mar 2018	27 Mar 2018	07 Apr 2018	28 Mar 2018	07 May 2018	28 Mar 2018
E2	SE177265.002	LB144478	24 Mar 2018	27 Mar 2018	07 Apr 2018	28 Mar 2018	07 May 2018	28 Mar 2018

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	E1	SE177265.001	%	70 - 130%	78
	E2	SE177265.002	%	70 - 130%	80
d14-p-terphenyl (Surrogate)	E1	SE177265.001	%	70 - 130%	76
	E2	SE177265.002	%	70 - 130%	76
d5-nitrobenzene (Surrogate)	E1	SE177265.001	%	70 - 130%	76
	E2	SE177265.002	%	70 - 130%	76

VOC's in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	E1	SE177265.001	%	60 - 130%	83
	E2	SE177265.002	%	60 - 130%	78
d4-1,2-dichloroethane (Surrogate)	E1	SE177265.001	%	60 - 130%	78
	E2	SE177265.002	%	60 - 130%	83
d8-toluene (Surrogate)	E1	SE177265.001	%	60 - 130%	103
	E2	SE177265.002	%	60 - 130%	88
Dibromofluoromethane (Surrogate)	E1	SE177265.001	%	60 - 130%	83
	E2	SE177265.002	%	60 - 130%	78

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	E1	SE177265.001	%	60 - 130%	83
	E2	SE177265.002	%	60 - 130%	78
d4-1,2-dichloroethane (Surrogate)	E1	SE177265.001	%	60 - 130%	78
	E2	SE177265.002	%	60 - 130%	83
d8-toluene (Surrogate)	E1	SE177265.001	%	60 - 130%	103
	E2	SE177265.002	%	60 - 130%	88
Dibromofluoromethane (Surrogate)	E1	SE177265.001	%	60 - 130%	83
	E2	SE177265.002	%	60 - 130%	78

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

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

Conductivity and TDS by Calculation - Soil

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

Sample Number	Parameter	Units	LOR	Result
LB144520.001	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	0.09

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB144499.001	Mercury	mg/kg	0.05	<0.05

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB144496.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1
	Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
	Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
	Benzo(ghi)perylene	mg/kg	0.1	<0.1
	Total PAH (18)	mg/kg	0.8	<0.8
Surrogates	d5-nitrobenzene (Surrogate)	%	-	96
	2-fluorobiphenyl (Surrogate)	%	-	96
	d14-p-terphenyl (Surrogate)	%	-	108

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result
LB144484.001	Total Phenols	mg/kg	0.1	<0.1

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

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

Sample Number	Parameter	Units	LOR	Result
LB144480.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	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	0.5	<0.5
LB144487.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	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	0.5	<0.5

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB144496.001	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

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.

VOC's in Soil

Method: ME-(AU)-ENVJAN433

Sample Number		Parameter	Units	LOR	Result
LB144478.001	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	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	89
		d4-1,2-dichloroethane (Surrogate)	%	-	102
		d8-toluene (Surrogate)	%	-	100
		Bromofluorobenzene (Surrogate)	%	-	86
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-ENVJAN433

Sample Number		Parameter	Units	LOR	Result
LB144478.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	89
		d4-1,2-dichloroethane (Surrogate)	%	-	102
		d8-toluene (Surrogate)	%	-	100

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

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

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

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

Mercury in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177262.010	LB144499.014	Mercury	mg/kg	0.05	0.00323550720	0.0029326519	200	0

Moisture Content

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177262.010	LB144479.011	% Moisture	%w/w	0.5	5.26315789475	5.1464766429	49	2
SE177266.001	LB144479.022	% Moisture	%w/w	0.5	10	11	40	6

pH in soil (1:5)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177274.001	LB144520.012	pH	pH Units	0.1	5.512	5.52	32	0

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177265.002	LB144484.008	Total Phenols	mg/kg	0.1	<0.1	0.0191103448	200	0

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

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177262.009	LB144480.014	Arsenic, As	mg/kg	3	2.72786282252	2.7272914492	67	0
		Cadmium, Cd	mg/kg	0.3	0.13306647910	0.0548835740	200	0
		Chromium, Cr	mg/kg	0.3	5.31850083848	0.0467763194	37	41 @
		Copper, Cu	mg/kg	0.5	22.66704305720	8.304272612	32	8
		Nickel, Ni	mg/kg	0.5	4.08347757885	2.983758031	41	26
		Lead, Pb	mg/kg	1	22.85000946610	0.9824125432	35	9
		Zinc, Zn	mg/kg	0.5	11.62485800830	0.9431462465	35	2
SE177265.001	LB144480.024	Arsenic, As	mg/kg	3	3	3	62	4
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	8.5	8.9	36	4
		Copper, Cu	mg/kg	0.5	6.7	8.1	37	19
		Nickel, Ni	mg/kg	0.5	4.4	4.8	41	10
		Lead, Pb	mg/kg	1	12	12	38	6
		Zinc, Zn	mg/kg	0.5	32	35	36	10
SE177266.001	LB144487.006	Arsenic, As	mg/kg	3	6	8	44	27
		Cadmium, Cd	mg/kg	0.3	<0.3	0.3	130	6
		Chromium, Cr	mg/kg	0.3	9.9	11	35	15
		Copper, Cu	mg/kg	0.5	39	29	31	28
		Nickel, Ni	mg/kg	0.5	11	6.6	36	46 @
		Lead, Pb	mg/kg	1	59	65	32	9
		Zinc, Zn	mg/kg	0.5	130	140	32	10

VOC's in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177266.001	LB144478.025	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200
			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	mg/kg	0.1	<0.1	<0.1	200
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.9	4.0	50	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.8	4.2	50	11
			d8-toluene (Surrogate)	mg/kg	-	4.3	4.5	50	4
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.3	4.1	50	5
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

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

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

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

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

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-ENVJAN433

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177266.001	LB144478.025	TRH C6-C10	mg/kg	25	<25	<25	200	0
		TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates						
		Dibromofluoromethane (Surrogate)	mg/kg	-	3.9	4.0	30	3
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.8	4.2	30	11
		d8-toluene (Surrogate)	mg/kg	-	4.3	4.5	30	4
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.3	4.1	30	5
		VPH F Bands						
		Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
		TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

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

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

Conductivity and TDS by Calculation - Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB144520.002	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	NA	303	85 - 115	102

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB144499.002	Mercury	mg/kg	0.05	0.21	0.2	70 - 130	103

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB144496.002	Naphthalene	mg/kg	0.1	4.1	4	60 - 140	103
	Acenaphthylene	mg/kg	0.1	4.4	4	60 - 140	111
	Acenaphthene	mg/kg	0.1	3.8	4	60 - 140	95
	Phenanthrene	mg/kg	0.1	4.1	4	60 - 140	103
	Anthracene	mg/kg	0.1	4.3	4	60 - 140	108
	Fluoranthene	mg/kg	0.1	4.1	4	60 - 140	102
	Pyrene	mg/kg	0.1	4.0	4	60 - 140	99
	Benzo(a)pyrene	mg/kg	0.1	4.6	4	60 - 140	115
	Surrogates						
	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94
	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92
	d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94

pH in soil (1:5)

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB144520.003	pH	pH Units	0.1	7.4	7.415	98 - 102	99

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB144484.002	Total Phenols	mg/kg	0.1	2.4	2.5	70 - 130	98

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 %
LB144480.002	Arsenic, As	mg/kg	3	310	325	80 - 120	94
	Cadmium, Cd	mg/kg	0.3	420	416.6	69 - 131	102
	Chromium, Cr	mg/kg	0.3	31	35.2	80 - 120	88
	Copper, Cu	mg/kg	0.5	320	314	80 - 120	101
	Nickel, Ni	mg/kg	0.5	180	183	80 - 120	98
	Lead, Pb	mg/kg	1	92	91.5	80 - 120	100
	Zinc, Zn	mg/kg	0.5	280	275	80 - 120	101
LB144487.002	Arsenic, As	mg/kg	3	310	325	80 - 120	96
	Cadmium, Cd	mg/kg	0.3	430	416.6	69 - 131	103
	Chromium, Cr	mg/kg	0.3	32	35.2	80 - 120	90
	Copper, Cu	mg/kg	0.5	320	314	80 - 120	103
	Nickel, Ni	mg/kg	0.5	180	183	80 - 120	100
	Lead, Pb	mg/kg	1	93	91.5	80 - 120	102
	Zinc, Zn	mg/kg	0.5	280	275	80 - 120	101

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB144496.002	TRH C10-C14	mg/kg	20	39	40	60 - 140	98
	TRH C15-C28	mg/kg	45	<45	40	60 - 140	108
	TRH C29-C36	mg/kg	45	<45	40	60 - 140	98
	TRH F Bands						
	TRH >C10-C16	mg/kg	25	41	40	60 - 140	103
	TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	110
	TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	100

VOC's in Soil

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

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

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

VOC's in Soil (continued)

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB144478.002	Monocyclic	Benzene	mg/kg	0.1	1.9	2.9	60 - 140
	Aromatic	Toluene	mg/kg	0.1	2.0	2.9	60 - 140
		Ethylbenzene	mg/kg	0.1	1.9	2.9	60 - 140
		m/p-xylene	mg/kg	0.2	3.9	5.8	60 - 140
		o-xylene	mg/kg	0.1	2.0	2.9	60 - 140
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	5	60 - 140
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.0	5	60 - 140
		d8-toluene (Surrogate)	mg/kg	-	5.3	5	60 - 140
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.9	5	60 - 140

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB144478.002	TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	85
	TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	83
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	5	60 - 140
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.0	5	60 - 140
		d8-toluene (Surrogate)	mg/kg	-	5.3	5	60 - 140
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.9	5	60 - 140
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140

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.

Total Phenolics in Soil

Method: ME-(AU)-(ENV)AN289

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE177266.001	LB144484.007	Total Phenols	mg/kg	0.1	2.8	0.2	2.5	104

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%
SE176445RE.0	LB144480.004	Zinc, Zn	mg/kg	0.5	1100	1000	50	218 ☹
SE177265.002	LB144487.004	Arsenic, As	mg/kg	3	49	5	50	88
		Cadmium, Cd	mg/kg	0.3	47	<0.3	50	94
		Chromium, Cr	mg/kg	0.3	58	14	50	88
		Copper, Cu	mg/kg	0.5	51	2.6	50	97
		Nickel, Ni	mg/kg	0.5	48	1.0	50	94
		Lead, Pb	mg/kg	1	60	21	50	78
		Zinc, Zn	mg/kg	0.5	65	25	50	79

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

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

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

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

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the 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 : <http://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.
 - 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 Analytical Report comments for further information.

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Order Number (Not specified)
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SGS Reference SE177584 R0
Date Received 5/4/2018
Date Reported 12/4/2018

COMMENTS

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

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

Asbestos analysed by Approved Identifier Ravee Sivasubramaniam.

SIGNATORIES



Akheequear Beniamene
Chemist



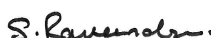
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Senior Organic Chemist/Metals Chemist



Dong Liang
Metals/Inorganics Team Leader



Kamrul Ahsan
Senior Chemist



Ravee Sivasubramaniam
Hygiene Team Leader



Shane McDermott
Inorganic/Metals Chemist

VOC's in Soil [AN433] Tested: 9/4/2018

PARAMETER	UOM	LOR	E3	E4	E5	E6	E7
			SOIL - 4/4/2018 SE177584.001	SOIL - 4/4/2018 SE177584.002	SOIL - 4/4/2018 SE177584.003	SOIL - 4/4/2018 SE177584.004	SOIL - 4/4/2018 SE177584.005
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorodifluoromethane (CFC-12)	mg/kg	1	-	-	<1	-	<1
Chloromethane	mg/kg	1	-	-	<1	-	<1
Vinyl chloride (Chloroethene)	mg/kg	0.1	-	-	<0.1	-	<0.1
Styrene (Vinyl benzene)	mg/kg	0.1	-	-	<0.1	-	<0.1
Chloroethane	mg/kg	1	-	-	<1	-	<1
Trichlorofluoromethane	mg/kg	1	-	-	<1	-	<1
Isopropylbenzene (Cumene)	mg/kg	0.1	-	-	<0.1	-	<0.1
1,1-dichloroethene	mg/kg	0.1	-	-	<0.1	-	<0.1
Dichloromethane (Methylene chloride)	mg/kg	0.5	-	-	<0.5	-	<0.5
n-propylbenzene	mg/kg	0.1	-	-	<0.1	-	<0.1
Allyl chloride	mg/kg	0.1	-	-	<0.1	-	<0.1
1,3,5-trimethylbenzene	mg/kg	0.1	-	-	<0.1	-	<0.1
tert-butylbenzene	mg/kg	0.1	-	-	<0.1	-	<0.1
trans-1,2-dichloroethene	mg/kg	0.1	-	-	<0.1	-	<0.1
1,2,4-trimethylbenzene	mg/kg	0.1	-	-	<0.1	-	<0.1
1,1-dichloroethane	mg/kg	0.1	-	-	<0.1	-	<0.1
sec-butylbenzene	mg/kg	0.1	-	-	<0.1	-	<0.1
cis-1,2-dichloroethene	mg/kg	0.1	-	-	<0.1	-	<0.1
p-isopropyltoluene	mg/kg	0.1	-	-	<0.1	-	<0.1
Bromochloromethane	mg/kg	0.1	-	-	<0.1	-	<0.1
n-butylbenzene	mg/kg	0.1	-	-	<0.1	-	<0.1
Chloroform	mg/kg	0.1	-	-	<0.1	-	<0.1
2,2-dichloropropane	mg/kg	0.1	-	-	<0.1	-	<0.1
1,2-dichloroethane	mg/kg	0.1	-	-	<0.1	-	<0.1
Total MAH*	mg/kg	1.8	-	-	<1.8	-	<1.8
1,1,1-trichloroethane	mg/kg	0.1	-	-	<0.1	-	<0.1
1,1-dichloropropene	mg/kg	0.1	-	-	<0.1	-	<0.1
Carbon tetrachloride	mg/kg	0.1	-	-	<0.1	-	<0.1
1,2-dichloropropane	mg/kg	0.1	-	-	<0.1	-	<0.1
Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	-	-	<0.1	-	<0.1
Bromodichloromethane	mg/kg	0.1	-	-	<0.1	-	<0.1
cis-1,3-dichloropropene	mg/kg	0.1	-	-	<0.1	-	<0.1
trans-1,3-dichloropropene	mg/kg	0.1	-	-	<0.1	-	<0.1
1,1,2-trichloroethane	mg/kg	0.1	-	-	<0.1	-	<0.1
1,3-dichloropropane	mg/kg	0.1	-	-	<0.1	-	<0.1
Chlorodibromomethane	mg/kg	0.1	-	-	<0.1	-	<0.1
Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	-	-	<0.1	-	<0.1
1,1,1,2-tetrachloroethane	mg/kg	0.1	-	-	<0.1	-	<0.1
Chlorobenzene	mg/kg	0.1	-	-	<0.1	-	<0.1
cis-1,4-dichloro-2-butene	mg/kg	1	-	-	<1	-	<1
1,1,2,2-tetrachloroethane	mg/kg	0.1	-	-	<0.1	-	<0.1
1,2,3-trichloropropane	mg/kg	0.1	-	-	<0.1	-	<0.1
trans-1,4-dichloro-2-butene	mg/kg	1	-	-	<1	-	<1
2-chlorotoluene	mg/kg	0.1	-	-	<0.1	-	<0.1
4-chlorotoluene	mg/kg	0.1	-	-	<0.1	-	<0.1
1,3-dichlorobenzene	mg/kg	0.1	-	-	<0.1	-	<0.1
1,4-dichlorobenzene	mg/kg	0.1	-	-	<0.1	-	<0.1
1,2-dichlorobenzene	mg/kg	0.1	-	-	<0.1	-	<0.1

VOC's in Soil [AN433] Tested: 9/4/2018 (continued)

PARAMETER	UOM	LOR	E3	E4	E5	E6	E7
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			4/4/2018	4/4/2018	4/4/2018	4/4/2018	4/4/2018
			SE177584.001	SE177584.002	SE177584.003	SE177584.004	SE177584.005
1,2-dibromo-3-chloropropane	mg/kg	0.1	-	-	<0.1	-	<0.1
1,2,4-trichlorobenzene	mg/kg	0.1	-	-	<0.1	-	<0.1
Hexachlorobutadiene	mg/kg	0.1	-	-	<0.1	-	<0.1
1,2,3-trichlorobenzene	mg/kg	0.1	-	-	<0.1	-	<0.1
Total Chlorinated VOC*	mg/kg	3	-	-	<3.0	-	<3.0

VOC's in Soil [AN433] Tested: 9/4/2018 (continued)

PARAMETER	UOM	LOR	E8	E9	E10	E11	E12
			SOIL - 4/4/2018 SE177584.006	SOIL - 4/4/2018 SE177584.007	SOIL - 4/4/2018 SE177584.008	SOIL - 4/4/2018 SE177584.009	SOIL - 4/4/2018 SE177584.010
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorodifluoromethane (CFC-12)	mg/kg	1	-	<1	-	<1	-
Chloromethane	mg/kg	1	-	<1	-	<1	-
Vinyl chloride (Chloroethene)	mg/kg	0.1	-	<0.1	-	<0.1	-
Styrene (Vinyl benzene)	mg/kg	0.1	-	<0.1	-	<0.1	-
Chloroethane	mg/kg	1	-	<1	-	<1	-
Trichlorofluoromethane	mg/kg	1	-	<1	-	<1	-
Isopropylbenzene (Cumene)	mg/kg	0.1	-	<0.1	-	<0.1	-
1,1-dichloroethene	mg/kg	0.1	-	<0.1	-	<0.1	-
Dichloromethane (Methylene chloride)	mg/kg	0.5	-	<0.5	-	<0.5	-
n-propylbenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
Allyl chloride	mg/kg	0.1	-	<0.1	-	<0.1	-
1,3,5-trimethylbenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
tert-butylbenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
trans-1,2-dichloroethene	mg/kg	0.1	-	<0.1	-	<0.1	-
1,2,4-trimethylbenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
1,1-dichloroethane	mg/kg	0.1	-	<0.1	-	<0.1	-
sec-butylbenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
cis-1,2-dichloroethene	mg/kg	0.1	-	<0.1	-	<0.1	-
p-isopropyltoluene	mg/kg	0.1	-	<0.1	-	<0.1	-
Bromochloromethane	mg/kg	0.1	-	<0.1	-	<0.1	-
n-butylbenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
Chloroform	mg/kg	0.1	-	<0.1	-	<0.1	-
2,2-dichloropropane	mg/kg	0.1	-	<0.1	-	<0.1	-
1,2-dichloroethane	mg/kg	0.1	-	<0.1	-	<0.1	-
Total MAH*	mg/kg	1.8	-	<1.8	-	<1.8	-
1,1,1-trichloroethane	mg/kg	0.1	-	<0.1	-	<0.1	-
1,1-dichloropropene	mg/kg	0.1	-	<0.1	-	<0.1	-
Carbon tetrachloride	mg/kg	0.1	-	<0.1	-	<0.1	-
1,2-dichloropropane	mg/kg	0.1	-	<0.1	-	<0.1	-
Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	-	<0.1	-	<0.1	-
Bromodichloromethane	mg/kg	0.1	-	<0.1	-	<0.1	-
cis-1,3-dichloropropene	mg/kg	0.1	-	<0.1	-	<0.1	-
trans-1,3-dichloropropene	mg/kg	0.1	-	<0.1	-	<0.1	-
1,1,2-trichloroethane	mg/kg	0.1	-	<0.1	-	<0.1	-
1,3-dichloropropane	mg/kg	0.1	-	<0.1	-	<0.1	-
Chlorodibromomethane	mg/kg	0.1	-	<0.1	-	<0.1	-
Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	-	<0.1	-	<0.1	-
1,1,1,2-tetrachloroethane	mg/kg	0.1	-	<0.1	-	<0.1	-
Chlorobenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
cis-1,4-dichloro-2-butene	mg/kg	1	-	<1	-	<1	-
1,1,2,2-tetrachloroethane	mg/kg	0.1	-	<0.1	-	<0.1	-
1,2,3-trichloropropane	mg/kg	0.1	-	<0.1	-	<0.1	-
trans-1,4-dichloro-2-butene	mg/kg	1	-	<1	-	<1	-
2-chlorotoluene	mg/kg	0.1	-	<0.1	-	<0.1	-
4-chlorotoluene	mg/kg	0.1	-	<0.1	-	<0.1	-
1,3-dichlorobenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
1,4-dichlorobenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
1,2-dichlorobenzene	mg/kg	0.1	-	<0.1	-	<0.1	-



ANALYTICAL RESULTS

SE177584 R0

VOC's in Soil [AN433] Tested: 9/4/2018 (continued)

PARAMETER	UOM	LOR	E8	E9	E10	E11	E12
			SOIL	SOIL	SOIL	SOIL	SOIL
			- 4/4/2018 SE177584.006	- 4/4/2018 SE177584.007	- 4/4/2018 SE177584.008	- 4/4/2018 SE177584.009	- 4/4/2018 SE177584.010
1,2-dibromo-3-chloropropane	mg/kg	0.1	-	<0.1	-	<0.1	-
1,2,4-trichlorobenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
Hexachlorobutadiene	mg/kg	0.1	-	<0.1	-	<0.1	-
1,2,3-trichlorobenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
Total Chlorinated VOC*	mg/kg	3	-	<3.0	-	<3.0	-

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 9/4/2018

PARAMETER	UOM	LOR	E3	E4	E5	E6	E7
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			4/4/2018 SE177584.001	4/4/2018 SE177584.002	4/4/2018 SE177584.003	4/4/2018 SE177584.004	4/4/2018 SE177584.005
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	E8	E9	E10	E11	E12
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			4/4/2018 SE177584.006	4/4/2018 SE177584.007	4/4/2018 SE177584.008	4/4/2018 SE177584.009	4/4/2018 SE177584.010
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 9/4/2018

PARAMETER	UOM	LOR	E3	E4	E5	E6	E7
			SOIL	SOIL	SOIL	SOIL	SOIL
			- 4/4/2018 SE177584.001	- 4/4/2018 SE177584.002	- 4/4/2018 SE177584.003	- 4/4/2018 SE177584.004	- 4/4/2018 SE177584.005
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	E8	E9	E10	E11	E12
			SOIL	SOIL	SOIL	SOIL	SOIL
			- 4/4/2018 SE177584.006	- 4/4/2018 SE177584.007	- 4/4/2018 SE177584.008	- 4/4/2018 SE177584.009	- 4/4/2018 SE177584.010
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 9/4/2018

PARAMETER	UOM	LOR	E3	E4	E5	E6	E7
			SOIL	SOIL	SOIL	SOIL	SOIL
			4/4/2018 SE177584.001	4/4/2018 SE177584.002	4/4/2018 SE177584.003	4/4/2018 SE177584.004	4/4/2018 SE177584.005
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	E8	E9	E10	E11	E12
			SOIL	SOIL	SOIL	SOIL	SOIL
			4/4/2018 SE177584.006	4/4/2018 SE177584.007	4/4/2018 SE177584.008	4/4/2018 SE177584.009	4/4/2018 SE177584.010
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

OC Pesticides in Soil [AN420] Tested: 9/4/2018

PARAMETER	UOM	LOR	E5	E7	E9	E11
			SOIL - 4/4/2018 SE177584.003	SOIL - 4/4/2018 SE177584.005	SOIL - 4/4/2018 SE177584.007	SOIL - 4/4/2018 SE177584.009
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	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

PCBs in Soil [AN420] Tested: 9/4/2018

PARAMETER	UOM	LOR	E5	E7	E9	E11
			SOIL - 4/4/2018 SE177584.003	SOIL - 4/4/2018 SE177584.005	SOIL - 4/4/2018 SE177584.007	SOIL - 4/4/2018 SE177584.009
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

Speciated Phenols in Soil [AN420] Tested: 9/4/2018

PARAMETER	UOM	LOR	E5	E7	E9	E11
			SOIL - 4/4/2018 SE177584.003	SOIL - 4/4/2018 SE177584.005	SOIL - 4/4/2018 SE177584.007	SOIL - 4/4/2018 SE177584.009
Phenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	<1	<1
Total Cresol	mg/kg	1.5	<1.5	<1.5	<1.5	<1.5
2-chlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2-nitrophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
4-nitrophenol	mg/kg	1	<1	<1	<1	<1
2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	<1	<1
Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	mg/kg	2	<2	<2	<2	<2
4-chloro-3-methylphenol	mg/kg	2	<2	<2	<2	<2

pH in soil (1:5) [AN101] Tested: 9/4/2018

			E3	E4	E6	E8	E10
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			4/4/2018	4/4/2018	4/4/2018	4/4/2018	4/4/2018
PARAMETER	UOM	LOR	SE177584.001	SE177584.002	SE177584.004	SE177584.006	SE177584.008
pH	pH Units	0.1	5.9	5.5	5.7	8.6	5.3

			E12
			SOIL
			-
			4/4/2018
PARAMETER	UOM	LOR	SE177584.010
pH	pH Units	0.1	5.9

Conductivity and TDS by Calculation - Soil [AN106] Tested: 9/4/2018

			E3	E4	E6	E8	E10
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			4/4/2018	4/4/2018	4/4/2018	4/4/2018	4/4/2018
PARAMETER	UOM	LOR	SE177584.001	SE177584.002	SE177584.004	SE177584.006	SE177584.008
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	47	58	57	340	49

			E12
			SOIL
			-
			4/4/2018
PARAMETER	UOM	LOR	SE177584.010
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	53

Total Cyanide in soil by Discrete Analyser (Aquakem) [AN077/AN287] Tested: 10/4/2018

PARAMETER	UOM	LOR	E5	E7	E9	E11
			SOIL - 4/4/2018 SE177584.003	SOIL - 4/4/2018 SE177584.005	SOIL - 4/4/2018 SE177584.007	SOIL - 4/4/2018 SE177584.009
Total Cyanide	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Total Cyanide Post Chlorination	mg/kg	0.5	-	-	-	-
Cyanide Amenable to Chlorination	mg/kg	0.5	-	-	-	-

Hexavalent Chromium in Soil UV/Vis [AN075/AN201] Tested: 9/4/2018

			E5	E7	E9	E11
			SOIL	SOIL	SOIL	SOIL
			-	-	-	-
			4/4/2018	4/4/2018	4/4/2018	4/4/2018
PARAMETER	UOM	LOR	SE177584.003	SE177584.005	SE177584.007	SE177584.009
Hexavalent Chromium, Cr6+	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5



ANALYTICAL RESULTS

SE177584 R0

Total Fluoride in Soil [AN142] Tested: 9/4/2018

			E5	E7	E9	E11
			SOIL	SOIL	SOIL	SOIL
			-	-	-	-
			4/4/2018	4/4/2018	4/4/2018	4/4/2018
PARAMETER	UOM	LOR	SE177584.003	SE177584.005	SE177584.007	SE177584.009
Total Fluoride	mg/kg	50	230	300	310	190

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 10/4/2018

PARAMETER	UOM	LOR	E3	E4	E5	E6	E7
			SOIL	SOIL	SOIL	SOIL	SOIL
			- 4/4/2018 SE177584.001	- 4/4/2018 SE177584.002	- 4/4/2018 SE177584.003	- 4/4/2018 SE177584.004	- 4/4/2018 SE177584.005
Arsenic, As	mg/kg	3	3	<3	8	<3	<3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	6.4	3.1	14	4.4	2.4
Copper, Cu	mg/kg	0.5	21	19	17	16	13
Lead, Pb	mg/kg	1	16	15	13	16	18
Nickel, Ni	mg/kg	0.5	5.1	2.5	18	3.4	<0.5
Zinc, Zn	mg/kg	0.5	29	15	70	16	7.6
Molybdenum, Mo	mg/kg	1	-	-	<1	-	<1
Tin, Sn	mg/kg	3	-	-	<3	-	<3
Selenium, Se	mg/kg	3	-	-	<3	-	<3
Silver, Ag	mg/kg	1	-	-	<1	-	<1

PARAMETER	UOM	LOR	E8	E9	E10	E11	E12
			SOIL	SOIL	SOIL	SOIL	SOIL
			- 4/4/2018 SE177584.006	- 4/4/2018 SE177584.007	- 4/4/2018 SE177584.008	- 4/4/2018 SE177584.009	- 4/4/2018 SE177584.010
Arsenic, As	mg/kg	3	9	4	3	9	<3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	13	7.8	2.9	11	1.3
Copper, Cu	mg/kg	0.5	21	23	14	18	9.6
Lead, Pb	mg/kg	1	18	11	18	18	13
Nickel, Ni	mg/kg	0.5	37	5.6	0.7	25	0.6
Zinc, Zn	mg/kg	0.5	130	43	7.4	100	5.3
Molybdenum, Mo	mg/kg	1	-	<1	-	<1	-
Tin, Sn	mg/kg	3	-	<3	-	<3	-
Selenium, Se	mg/kg	3	-	<3	-	<3	-
Silver, Ag	mg/kg	1	-	<1	-	<1	-

PARAMETER	UOM	LOR	E13
			SOIL
			- 4/4/2018 SE177584.011
Arsenic, As	mg/kg	3	-
Cadmium, Cd	mg/kg	0.3	-
Chromium, Cr	mg/kg	0.3	-
Copper, Cu	mg/kg	0.5	-
Lead, Pb	mg/kg	1	16
Nickel, Ni	mg/kg	0.5	-
Zinc, Zn	mg/kg	0.5	-
Molybdenum, Mo	mg/kg	1	-
Tin, Sn	mg/kg	3	-
Selenium, Se	mg/kg	3	-
Silver, Ag	mg/kg	1	-

Mercury in Soil [AN312] Tested: 9/4/2018

			E3	E4	E5	E6	E7
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			4/4/2018	4/4/2018	4/4/2018	4/4/2018	4/4/2018
PARAMETER	UOM	LOR	SE177584.001	SE177584.002	SE177584.003	SE177584.004	SE177584.005
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

			E8	E9	E10	E11	E12
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			4/4/2018	4/4/2018	4/4/2018	4/4/2018	4/4/2018
PARAMETER	UOM	LOR	SE177584.006	SE177584.007	SE177584.008	SE177584.009	SE177584.010
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 9/4/2018

			E3	E4	E5	E6	E7
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			4/4/2018	4/4/2018	4/4/2018	4/4/2018	4/4/2018
PARAMETER	UOM	LOR	SE177584.001	SE177584.002	SE177584.003	SE177584.004	SE177584.005
% Moisture	%w/w	0.5	13	13	5.0	15	5.6

			E8	E9	E10	E11	E12
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			4/4/2018	4/4/2018	4/4/2018	4/4/2018	4/4/2018
PARAMETER	UOM	LOR	SE177584.006	SE177584.007	SE177584.008	SE177584.009	SE177584.010
% Moisture	%w/w	0.5	12	13	6.6	12	11

			E13
			SOIL
			-
			4/4/2018
PARAMETER	UOM	LOR	SE177584.011
% Moisture	%w/w	0.5	21

Fibre Identification in soil [AN602] Tested: 10/4/2018

			E3	E4	E5	E6	E7
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			4/4/2018	4/4/2018	4/4/2018	4/4/2018	4/4/2018
PARAMETER	UOM	LOR	SE177584.001	SE177584.002	SE177584.003	SE177584.004	SE177584.005
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

			E8	E9	E10	E11	E12
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			4/4/2018	4/4/2018	4/4/2018	4/4/2018	4/4/2018
PARAMETER	UOM	LOR	SE177584.006	SE177584.007	SE177584.008	SE177584.009	SE177584.010
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

METHOD

METHODOLOGY SUMMARY

AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN075	This method uses an alkaline digestion to solubilise both water-soluble and water-insoluble forms of hexavalent chromium in solids. The solution is then pH adjusted and the hexavalent chromium concentration in solution determined colourimetrically.
AN077	Hydrogen cyanide is liberated from an acidified alkali soil extract by distillation and purging with air. The hydrogen cyanide gas is then collected by passing it through a sodium hydroxide scrubbing solution. The scrubbing solution will then be analysed for cyanide by the appropriate method.
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode and is calibrated against 3 buffers purchased commercially. For soils, sediments and sludges, an extract with water (or 0.01M CaCl ₂) is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN106	Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos/cm or µS/cm @ 25°C. For soils, an extract with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Salinity can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. Reference APHA 2510 B.
AN142	Fluoride can be measured in soil as water extractable or 'total' by Ion Selective electrode. In this method the solid sample is weighed and then fused with sodium hydroxide at 600°C. The sample is carefully neutralise with hydrochloric acid and the solution of the melt is cooled and made up to volume. The final solution is then compared to synthetic Digestion Matrix standards with analysis by ISE electrode for a total fluoride result after being calculated back to original mass.
AN201	Cr ⁶⁺ is determined colourimetrically by reaction with diphenylcarbazide in acid solution. A red-violet colour of unknown composition is produced.
AN287	A buffered distillate or water sample is treated with chloramine/barbituric acid reagents and the intensity of the colour developed is proportional to the cyanide concentration by Aquakem DA .
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 Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).

AN433

VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC's are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

AN602

Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.

AN602

Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.

AN602

AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

AN602

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

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

FOOTNOTES

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

Samples analysed as received.
Solid samples expressed on a dry weight basis.

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

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

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

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

Note that in terms of units of radioactivity:

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

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

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : <http://www.sgs.com.au/~media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf>

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Project DDE-199
 Order Number (Not specified)
 Samples 10

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SGS Reference SE177584 R0
 Date Received 05 Apr 2018
 Date Reported 12 Apr 2018

COMMENTS

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

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

Asbestos analysed by Approved Identifier Ravee Sivasubramaniam.

SIGNATORIES




Akheeque Beniamen
Chemist



Bennet Lo
Senior Organic Chemist/Metals Chemis



Dong Liang
Metals/Inorganics Team Leader



Kamrul Ahsan
Senior Chemist



Ravee Sivasubramaniam
Hygiene Team Leader



Shane McDermott
Inorganic/Metals Chemist

RESULTS

Fibre Identification in soil

Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE177584.001	E3	Soil	67g Clay,Rocks	04 Apr 2018	No Asbestos Found	<0.01
SE177584.002	E4	Soil	194g Clay,Rocks	04 Apr 2018	No Asbestos Found	<0.01
SE177584.003	E5	Soil	152g Clay,Rocks	04 Apr 2018	No Asbestos Found	<0.01
SE177584.004	E6	Soil	108g Clay,Rocks	04 Apr 2018	No Asbestos Found	<0.01
SE177584.005	E7	Soil	81g Clay,Rocks	04 Apr 2018	No Asbestos Found	<0.01
SE177584.006	E8	Soil	196g Clay,Rocks	04 Apr 2018	No Asbestos Found	<0.01
SE177584.007	E9	Soil	109g Clay,Rocks	04 Apr 2018	No Asbestos Found	<0.01
SE177584.008	E10	Soil	116g Clay,Rocks	04 Apr 2018	No Asbestos Found	<0.01
SE177584.009	E11	Soil	201g Clay,Rocks	04 Apr 2018	No Asbestos Found	<0.01
SE177584.010	E12	Soil	80g Clay,Rocks	04 Apr 2018	No Asbestos Found	<0.01

METHOD

METHODOLOGY SUMMARY

AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states: "Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	<p>The sample can be reported "no asbestos found at the reporting limit of 0.1 g/kg" (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if-</p> <ul style="list-style-type: none"> (a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres); (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg; and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

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

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

Sampled by the client.

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

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

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

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

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : <http://www.sgs.com.au/~media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf>

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STATEMENT OF QA/QC PERFORMANCE

SE177584 R0

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Order Number (Not specified)
Samples 11

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SGS Reference SE177584 R0
Date Received 05 Apr 2018
Date Reported 12 Apr 2018

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 and was supplied by the Client.

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	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item
Matrix Spike	TRH (Total Recoverable Hydrocarbons) in Soil	2 items

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	11 Soil
Date documentation received	5/4/2018	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	4.1°C	Sufficient sample for analysis	Yes
Turnaround time requested	Three Days		

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.

Conductivity and TDS by Calculation - Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E3	SE177584.001	LB145205	04 Apr 2018	05 Apr 2018	11 Apr 2018	09 Apr 2018	11 Apr 2018	11 Apr 2018
E4	SE177584.002	LB145205	04 Apr 2018	05 Apr 2018	11 Apr 2018	09 Apr 2018	11 Apr 2018	11 Apr 2018
E6	SE177584.004	LB145205	04 Apr 2018	05 Apr 2018	11 Apr 2018	09 Apr 2018	11 Apr 2018	11 Apr 2018
E8	SE177584.006	LB145205	04 Apr 2018	05 Apr 2018	11 Apr 2018	09 Apr 2018	11 Apr 2018	11 Apr 2018
E10	SE177584.008	LB145205	04 Apr 2018	05 Apr 2018	11 Apr 2018	09 Apr 2018	11 Apr 2018	11 Apr 2018
E12	SE177584.010	LB145205	04 Apr 2018	05 Apr 2018	11 Apr 2018	09 Apr 2018	11 Apr 2018	11 Apr 2018

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E3	SE177584.001	LB145319	04 Apr 2018	05 Apr 2018	04 Apr 2019	10 Apr 2018	04 Apr 2019	11 Apr 2018
E4	SE177584.002	LB145319	04 Apr 2018	05 Apr 2018	04 Apr 2019	10 Apr 2018	04 Apr 2019	11 Apr 2018
E5	SE177584.003	LB145319	04 Apr 2018	05 Apr 2018	04 Apr 2019	10 Apr 2018	04 Apr 2019	11 Apr 2018
E6	SE177584.004	LB145319	04 Apr 2018	05 Apr 2018	04 Apr 2019	10 Apr 2018	04 Apr 2019	11 Apr 2018
E7	SE177584.005	LB145319	04 Apr 2018	05 Apr 2018	04 Apr 2019	10 Apr 2018	04 Apr 2019	11 Apr 2018
E8	SE177584.006	LB145319	04 Apr 2018	05 Apr 2018	04 Apr 2019	10 Apr 2018	04 Apr 2019	11 Apr 2018
E9	SE177584.007	LB145319	04 Apr 2018	05 Apr 2018	04 Apr 2019	10 Apr 2018	04 Apr 2019	11 Apr 2018
E10	SE177584.008	LB145319	04 Apr 2018	05 Apr 2018	04 Apr 2019	10 Apr 2018	04 Apr 2019	11 Apr 2018
E11	SE177584.009	LB145319	04 Apr 2018	05 Apr 2018	04 Apr 2019	10 Apr 2018	04 Apr 2019	11 Apr 2018
E12	SE177584.010	LB145319	04 Apr 2018	05 Apr 2018	04 Apr 2019	10 Apr 2018	04 Apr 2019	11 Apr 2018

Hexavalent Chromium in Soil UV/Vis

Method: ME-(AU)-[ENV]AN075/AN201

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E5	SE177584.003	LB145193	04 Apr 2018	05 Apr 2018	02 May 2018	09 Apr 2018	16 Apr 2018	11 Apr 2018
E7	SE177584.005	LB145193	04 Apr 2018	05 Apr 2018	02 May 2018	09 Apr 2018	16 Apr 2018	11 Apr 2018
E9	SE177584.007	LB145193	04 Apr 2018	05 Apr 2018	02 May 2018	09 Apr 2018	16 Apr 2018	11 Apr 2018
E11	SE177584.009	LB145193	04 Apr 2018	05 Apr 2018	02 May 2018	09 Apr 2018	16 Apr 2018	11 Apr 2018

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E3	SE177584.001	LB145220	04 Apr 2018	05 Apr 2018	02 May 2018	09 Apr 2018	02 May 2018	11 Apr 2018
E4	SE177584.002	LB145220	04 Apr 2018	05 Apr 2018	02 May 2018	09 Apr 2018	02 May 2018	11 Apr 2018
E5	SE177584.003	LB145220	04 Apr 2018	05 Apr 2018	02 May 2018	09 Apr 2018	02 May 2018	11 Apr 2018
E6	SE177584.004	LB145220	04 Apr 2018	05 Apr 2018	02 May 2018	09 Apr 2018	02 May 2018	11 Apr 2018
E7	SE177584.005	LB145220	04 Apr 2018	05 Apr 2018	02 May 2018	09 Apr 2018	02 May 2018	11 Apr 2018
E8	SE177584.006	LB145220	04 Apr 2018	05 Apr 2018	02 May 2018	09 Apr 2018	02 May 2018	11 Apr 2018
E9	SE177584.007	LB145220	04 Apr 2018	05 Apr 2018	02 May 2018	09 Apr 2018	02 May 2018	11 Apr 2018
E10	SE177584.008	LB145220	04 Apr 2018	05 Apr 2018	02 May 2018	09 Apr 2018	02 May 2018	11 Apr 2018
E11	SE177584.009	LB145220	04 Apr 2018	05 Apr 2018	02 May 2018	09 Apr 2018	02 May 2018	11 Apr 2018
E12	SE177584.010	LB145220	04 Apr 2018	05 Apr 2018	02 May 2018	09 Apr 2018	02 May 2018	11 Apr 2018

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E3	SE177584.001	LB145201	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	14 Apr 2018	11 Apr 2018
E4	SE177584.002	LB145201	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	14 Apr 2018	11 Apr 2018
E5	SE177584.003	LB145201	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	14 Apr 2018	11 Apr 2018
E6	SE177584.004	LB145201	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	14 Apr 2018	11 Apr 2018
E7	SE177584.005	LB145201	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	14 Apr 2018	11 Apr 2018
E8	SE177584.006	LB145201	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	14 Apr 2018	11 Apr 2018
E9	SE177584.007	LB145201	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	14 Apr 2018	11 Apr 2018
E10	SE177584.008	LB145201	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	14 Apr 2018	11 Apr 2018
E11	SE177584.009	LB145201	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	14 Apr 2018	11 Apr 2018
E12	SE177584.010	LB145201	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	14 Apr 2018	11 Apr 2018
E13	SE177584.011	LB145201	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	14 Apr 2018	11 Apr 2018

OC Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E3	SE177584.001	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E4	SE177584.002	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E5	SE177584.003	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E6	SE177584.004	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E7	SE177584.005	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E8	SE177584.006	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018

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.

OC Pesticides in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E9	SE177584.007	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E10	SE177584.008	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E11	SE177584.009	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E12	SE177584.010	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018

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
E3	SE177584.001	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	12 Apr 2018
E4	SE177584.002	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	12 Apr 2018
E5	SE177584.003	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	12 Apr 2018
E6	SE177584.004	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	12 Apr 2018
E7	SE177584.005	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	12 Apr 2018
E8	SE177584.006	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	12 Apr 2018
E9	SE177584.007	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	12 Apr 2018
E10	SE177584.008	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	12 Apr 2018
E11	SE177584.009	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	12 Apr 2018
E12	SE177584.010	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	12 Apr 2018

PCBs in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E3	SE177584.001	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E4	SE177584.002	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E5	SE177584.003	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E6	SE177584.004	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E7	SE177584.005	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E8	SE177584.006	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E9	SE177584.007	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E10	SE177584.008	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E11	SE177584.009	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E12	SE177584.010	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018

pH in soil (1:5)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E3	SE177584.001	LB145205	04 Apr 2018	05 Apr 2018	11 Apr 2018	09 Apr 2018	10 Apr 2018	10 Apr 2018
E4	SE177584.002	LB145205	04 Apr 2018	05 Apr 2018	11 Apr 2018	09 Apr 2018	10 Apr 2018	10 Apr 2018
E6	SE177584.004	LB145205	04 Apr 2018	05 Apr 2018	11 Apr 2018	09 Apr 2018	10 Apr 2018	10 Apr 2018
E8	SE177584.006	LB145205	04 Apr 2018	05 Apr 2018	11 Apr 2018	09 Apr 2018	10 Apr 2018	10 Apr 2018
E10	SE177584.008	LB145205	04 Apr 2018	05 Apr 2018	11 Apr 2018	09 Apr 2018	10 Apr 2018	10 Apr 2018
E12	SE177584.010	LB145205	04 Apr 2018	05 Apr 2018	11 Apr 2018	09 Apr 2018	10 Apr 2018	10 Apr 2018

Speciated Phenols in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E3	SE177584.001	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E4	SE177584.002	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E5	SE177584.003	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E6	SE177584.004	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E7	SE177584.005	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E8	SE177584.006	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E9	SE177584.007	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E10	SE177584.008	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E11	SE177584.009	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E12	SE177584.010	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018

Total Cyanide in soil by Discrete Analyser (AquaKem)

Method: ME-(AU)-[ENV]AN077/AN287

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E5	SE177584.003	LB145280	04 Apr 2018	05 Apr 2018	18 Apr 2018	10 Apr 2018	18 Apr 2018	11 Apr 2018
E7	SE177584.005	LB145280	04 Apr 2018	05 Apr 2018	18 Apr 2018	10 Apr 2018	18 Apr 2018	11 Apr 2018
E9	SE177584.007	LB145280	04 Apr 2018	05 Apr 2018	18 Apr 2018	10 Apr 2018	18 Apr 2018	11 Apr 2018
E11	SE177584.009	LB145280	04 Apr 2018	05 Apr 2018	18 Apr 2018	10 Apr 2018	18 Apr 2018	11 Apr 2018

Total Fluoride in Soil

Method: ME-(AU)-[ENV]AN142

Sample Name	Sample No.	QC Ref
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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.

Total Fluoride in Soil (continued)

Method: ME-(AU)-[ENV]AN142

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E5	SE177584.003	LB145166	04 Apr 2018	05 Apr 2018	02 May 2018	09 Apr 2018	02 May 2018	11 Apr 2018
E7	SE177584.005	LB145166	04 Apr 2018	05 Apr 2018	02 May 2018	09 Apr 2018	02 May 2018	11 Apr 2018
E9	SE177584.007	LB145166	04 Apr 2018	05 Apr 2018	02 May 2018	09 Apr 2018	02 May 2018	11 Apr 2018
E11	SE177584.009	LB145166	04 Apr 2018	05 Apr 2018	02 May 2018	09 Apr 2018	02 May 2018	11 Apr 2018

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
E3	SE177584.001	LB145271	04 Apr 2018	05 Apr 2018	01 Oct 2018	10 Apr 2018	01 Oct 2018	11 Apr 2018
E4	SE177584.002	LB145271	04 Apr 2018	05 Apr 2018	01 Oct 2018	10 Apr 2018	01 Oct 2018	11 Apr 2018
E5	SE177584.003	LB145271	04 Apr 2018	05 Apr 2018	01 Oct 2018	10 Apr 2018	01 Oct 2018	11 Apr 2018
E6	SE177584.004	LB145271	04 Apr 2018	05 Apr 2018	01 Oct 2018	10 Apr 2018	01 Oct 2018	11 Apr 2018
E7	SE177584.005	LB145271	04 Apr 2018	05 Apr 2018	01 Oct 2018	10 Apr 2018	01 Oct 2018	11 Apr 2018
E8	SE177584.006	LB145271	04 Apr 2018	05 Apr 2018	01 Oct 2018	10 Apr 2018	01 Oct 2018	11 Apr 2018
E9	SE177584.007	LB145271	04 Apr 2018	05 Apr 2018	01 Oct 2018	10 Apr 2018	01 Oct 2018	11 Apr 2018
E10	SE177584.008	LB145271	04 Apr 2018	05 Apr 2018	01 Oct 2018	10 Apr 2018	01 Oct 2018	11 Apr 2018
E11	SE177584.009	LB145271	04 Apr 2018	05 Apr 2018	01 Oct 2018	10 Apr 2018	01 Oct 2018	11 Apr 2018
E12	SE177584.010	LB145271	04 Apr 2018	05 Apr 2018	01 Oct 2018	10 Apr 2018	01 Oct 2018	11 Apr 2018
E13	SE177584.011	LB145271	04 Apr 2018	05 Apr 2018	01 Oct 2018	10 Apr 2018	01 Oct 2018	11 Apr 2018

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
E3	SE177584.001	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E4	SE177584.002	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E5	SE177584.003	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E6	SE177584.004	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E7	SE177584.005	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E8	SE177584.006	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E9	SE177584.007	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E10	SE177584.008	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E11	SE177584.009	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E12	SE177584.010	LB145181	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E3	SE177584.001	LB145187	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E4	SE177584.002	LB145187	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E5	SE177584.003	LB145187	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E6	SE177584.004	LB145187	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E7	SE177584.005	LB145187	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E8	SE177584.006	LB145187	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E9	SE177584.007	LB145187	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E10	SE177584.008	LB145187	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E11	SE177584.009	LB145187	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E12	SE177584.010	LB145187	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018

Volatile Petroleum Hydrocarbons in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E3	SE177584.001	LB145187	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E4	SE177584.002	LB145187	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E5	SE177584.003	LB145187	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E6	SE177584.004	LB145187	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E7	SE177584.005	LB145187	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E8	SE177584.006	LB145187	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E9	SE177584.007	LB145187	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E10	SE177584.008	LB145187	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E11	SE177584.009	LB145187	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018
E12	SE177584.010	LB145187	04 Apr 2018	05 Apr 2018	18 Apr 2018	09 Apr 2018	19 May 2018	11 Apr 2018

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)	E5	SE177584.003	%	60 - 130%	102
	E7	SE177584.005	%	60 - 130%	102
	E9	SE177584.007	%	60 - 130%	87
	E11	SE177584.009	%	60 - 130%	111

PAH (Polynuclear Aromatic Hydrocarbons) In Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	E3	SE177584.001	%	70 - 130%	94
	E4	SE177584.002	%	70 - 130%	80
	E5	SE177584.003	%	70 - 130%	102
	E6	SE177584.004	%	70 - 130%	90
	E7	SE177584.005	%	70 - 130%	84
	E8	SE177584.006	%	70 - 130%	86
	E9	SE177584.007	%	70 - 130%	88
	E10	SE177584.008	%	70 - 130%	80
	E11	SE177584.009	%	70 - 130%	92
	E12	SE177584.010	%	70 - 130%	90
d14-p-terphenyl (Surrogate)	E3	SE177584.001	%	70 - 130%	110
	E4	SE177584.002	%	70 - 130%	84
	E5	SE177584.003	%	70 - 130%	118
	E6	SE177584.004	%	70 - 130%	112
	E7	SE177584.005	%	70 - 130%	106
	E8	SE177584.006	%	70 - 130%	106
	E9	SE177584.007	%	70 - 130%	104
	E10	SE177584.008	%	70 - 130%	94
	E11	SE177584.009	%	70 - 130%	108
	E12	SE177584.010	%	70 - 130%	104
d5-nitrobenzene (Surrogate)	E3	SE177584.001	%	70 - 130%	86
	E4	SE177584.002	%	70 - 130%	80
	E5	SE177584.003	%	70 - 130%	78
	E6	SE177584.004	%	70 - 130%	80
	E7	SE177584.005	%	70 - 130%	80
	E8	SE177584.006	%	70 - 130%	80
	E9	SE177584.007	%	70 - 130%	86
	E10	SE177584.008	%	70 - 130%	76
	E11	SE177584.009	%	70 - 130%	88
	E12	SE177584.010	%	70 - 130%	88

PCBs In Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	E5	SE177584.003	%	60 - 130%	102
	E7	SE177584.005	%	60 - 130%	102
	E9	SE177584.007	%	60 - 130%	87
	E11	SE177584.009	%	60 - 130%	111

Speciated Phenols In Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2,4,6-Tribromophenol (Surrogate)	E5	SE177584.003	%	70 - 130%	105
	E7	SE177584.005	%	70 - 130%	112
	E9	SE177584.007	%	70 - 130%	106
	E11	SE177584.009	%	70 - 130%	108
d5-phenol (Surrogate)	E5	SE177584.003	%	50 - 130%	103
	E7	SE177584.005	%	50 - 130%	110
	E9	SE177584.007	%	50 - 130%	104
	E11	SE177584.009	%	50 - 130%	106

VOC's In Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	E3	SE177584.001	%	60 - 130%	87
	E4	SE177584.002	%	60 - 130%	82
	E5	SE177584.003	%	60 - 130%	82
	E6	SE177584.004	%	60 - 130%	76
	E7	SE177584.005	%	60 - 130%	78

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

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

VOC's in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	E8	SE177584.006	%	60 - 130%	78
	E9	SE177584.007	%	60 - 130%	82
	E10	SE177584.008	%	60 - 130%	75
	E11	SE177584.009	%	60 - 130%	90
	E12	SE177584.010	%	60 - 130%	74
d4-1,2-dichloroethane (Surrogate)	E3	SE177584.001	%	60 - 130%	81
	E4	SE177584.002	%	60 - 130%	73
	E5	SE177584.003	%	60 - 130%	98
	E6	SE177584.004	%	60 - 130%	72
	E7	SE177584.005	%	60 - 130%	96
	E8	SE177584.006	%	60 - 130%	77
	E9	SE177584.007	%	60 - 130%	110
	E10	SE177584.008	%	60 - 130%	97
	E11	SE177584.009	%	60 - 130%	79
	E12	SE177584.010	%	60 - 130%	78
d8-toluene (Surrogate)	E3	SE177584.001	%	60 - 130%	94
	E4	SE177584.002	%	60 - 130%	95
	E5	SE177584.003	%	60 - 130%	98
	E6	SE177584.004	%	60 - 130%	95
	E7	SE177584.005	%	60 - 130%	90
	E8	SE177584.006	%	60 - 130%	109
	E9	SE177584.007	%	60 - 130%	94
	E10	SE177584.008	%	60 - 130%	94
	E11	SE177584.009	%	60 - 130%	99
	E12	SE177584.010	%	60 - 130%	82
Dibromofluoromethane (Surrogate)	E3	SE177584.001	%	60 - 130%	72
	E4	SE177584.002	%	60 - 130%	75
	E5	SE177584.003	%	60 - 130%	96
	E6	SE177584.004	%	60 - 130%	75
	E7	SE177584.005	%	60 - 130%	86
	E8	SE177584.006	%	60 - 130%	75
	E9	SE177584.007	%	60 - 130%	97
	E10	SE177584.008	%	60 - 130%	83
	E11	SE177584.009	%	60 - 130%	106
	E12	SE177584.010	%	60 - 130%	75

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	E3	SE177584.001	%	60 - 130%	87
	E4	SE177584.002	%	60 - 130%	82
	E5	SE177584.003	%	60 - 130%	79
	E6	SE177584.004	%	60 - 130%	76
	E7	SE177584.005	%	60 - 130%	82
	E8	SE177584.006	%	60 - 130%	78
	E9	SE177584.007	%	60 - 130%	73
	E10	SE177584.008	%	60 - 130%	75
	E11	SE177584.009	%	60 - 130%	77
	E12	SE177584.010	%	60 - 130%	74
d4-1,2-dichloroethane (Surrogate)	E3	SE177584.001	%	60 - 130%	81
	E4	SE177584.002	%	60 - 130%	73
	E5	SE177584.003	%	60 - 130%	88
	E6	SE177584.004	%	60 - 130%	72
	E7	SE177584.005	%	60 - 130%	86
	E8	SE177584.006	%	60 - 130%	77
	E9	SE177584.007	%	60 - 130%	98
	E10	SE177584.008	%	60 - 130%	97
	E11	SE177584.009	%	60 - 130%	78
	E12	SE177584.010	%	60 - 130%	78
d8-toluene (Surrogate)	E3	SE177584.001	%	60 - 130%	94
	E4	SE177584.002	%	60 - 130%	95
	E5	SE177584.003	%	60 - 130%	97

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)	E6	SE177584.004	%	60 - 130%	95
	E7	SE177584.005	%	60 - 130%	79
	E8	SE177584.006	%	60 - 130%	109
	E9	SE177584.007	%	60 - 130%	82
	E10	SE177584.008	%	60 - 130%	94
	E11	SE177584.009	%	60 - 130%	82
Dibromofluoromethane (Surrogate)	E12	SE177584.010	%	60 - 130%	82
	E3	SE177584.001	%	60 - 130%	72
	E4	SE177584.002	%	60 - 130%	75
	E5	SE177584.003	%	60 - 130%	85
	E6	SE177584.004	%	60 - 130%	75
	E7	SE177584.005	%	60 - 130%	77
	E8	SE177584.006	%	60 - 130%	75
	E9	SE177584.007	%	60 - 130%	86
	E10	SE177584.008	%	60 - 130%	83
	E11	SE177584.009	%	60 - 130%	81
	E12	SE177584.010	%	60 - 130%	75

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

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

Conductivity and TDS by Calculation - Soil

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

Sample Number	Parameter	Units	LOR	Result
LB145205.001	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	0

Hexavalent Chromium in Soil UV/Vis

Method: ME-(AU)-[ENV]AN075/AN201

Sample Number	Parameter	Units	LOR	Result
LB145193.011	Hexavalent Chromium, Cr6+	mg/kg	0.5	0

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB145220.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB145181.001	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
	Alpha BHC	mg/kg	0.1	<0.1
	Lindane	mg/kg	0.1	<0.1
	Heptachlor	mg/kg	0.1	<0.1
	Aldrin	mg/kg	0.1	<0.1
	Beta BHC	mg/kg	0.1	<0.1
	Delta BHC	mg/kg	0.1	<0.1
	Heptachlor epoxide	mg/kg	0.1	<0.1
	Alpha Endosulfan	mg/kg	0.2	<0.2
	Gamma Chlordane	mg/kg	0.1	<0.1
	Alpha Chlordane	mg/kg	0.1	<0.1
	p,p'-DDE	mg/kg	0.1	<0.1
	Dieldrin	mg/kg	0.2	<0.2
	Endrin	mg/kg	0.2	<0.2
	Beta Endosulfan	mg/kg	0.2	<0.2
	p,p'-DDD	mg/kg	0.1	<0.1
	p,p'-DDT	mg/kg	0.1	<0.1
	Endosulfan sulphate	mg/kg	0.1	<0.1
	Endrin Aldehyde	mg/kg	0.1	<0.1
	Methoxychlor	mg/kg	0.1	<0.1
	Endrin Ketone	mg/kg	0.1	<0.1
	Isodrin	mg/kg	0.1	<0.1
	Mirex	mg/kg	0.1	<0.1
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	94

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB145181.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1
	Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
	Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
	Benzo(ghi)perylene	mg/kg	0.1	<0.1
	Total PAH (18)	mg/kg	0.8	<0.8
Surrogates	d5-nitrobenzene (Surrogate)	%	-	88

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
LB145181.001	2-fluorobiphenyl (Surrogate)	%	-	96
	d14-p-terphenyl (Surrogate)	%	-	108

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB145181.001	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 (Arochors)	mg/kg	1	<1
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	94

Speciated Phenols in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB145181.001	Phenol	mg/kg	0.5	<0.5
	2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5
	3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1
	2-chlorophenol	mg/kg	0.5	<0.5
	2,4-dimethylphenol	mg/kg	0.5	<0.5
	2,6-dichlorophenol	mg/kg	0.5	<0.5
	2,4-dichlorophenol	mg/kg	0.5	<0.5
	2,4,6-trichlorophenol	mg/kg	0.5	<0.5
	2-nitrophenol	mg/kg	0.5	<0.5
	4-nitrophenol	mg/kg	1	<1
	2,4,5-trichlorophenol	mg/kg	0.5	<0.5
	2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1
	Pentachlorophenol	mg/kg	0.5	<0.5
	2,4-dinitrophenol	mg/kg	2	<2
	4-chloro-3-methylphenol	mg/kg	2	<2
Surrogates	2,4,6-Tribromophenol (Surrogate)	%	-	112
	d5-phenol (Surrogate)	%	-	110

Total Cyanide in soil by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN077/AN287

Sample Number	Parameter	Units	LOR	Result
LB145280.001	Total Cyanide	mg/kg	0.5	<0.5

Total Fluoride in Soil

Method: ME-(AU)-[ENV]AN142

Sample Number	Parameter	Units	LOR	Result
LB145166.001	Total Fluoride	mg/kg	50	0

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

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

Sample Number	Parameter	Units	LOR	Result
LB145271.001	Silver, Ag	mg/kg	1	<1
	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Molybdenum, Mo	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Selenium, Se	mg/kg	3	<3
	Tin, Sn	mg/kg	3	<3
	Zinc, Zn	mg/kg	0.5	<0.5

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.

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-ENVJAN403

Sample Number	Parameter	Units	LOR	Result
LB145181.001	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)-ENVJAN433

Sample Number		Parameter	Units	LOR	Result	
LB145187.001	Fumigants	2,2-dichloropropane	mg/kg	0.1	<0.1	
		1,2-dichloropropane	mg/kg	0.1	<0.1	
		cis-1,3-dichloropropene	mg/kg	0.1	<0.1	
		trans-1,3-dichloropropene	mg/kg	0.1	<0.1	
	Halogenated Aliphatics	Dichlorodifluoromethane (CFC-12)	mg/kg	1	<1	
		Chloromethane	mg/kg	1	<1	
		Vinyl chloride (Chloroethene)	mg/kg	0.1	<0.1	
		Chloroethane	mg/kg	1	<1	
		Trichlorofluoromethane	mg/kg	1	<1	
		1,1-dichloroethene	mg/kg	0.1	<0.1	
		Dichloromethane (Methylene chloride)	mg/kg	0.5	<0.5	
		Allyl chloride	mg/kg	0.1	<0.1	
		trans-1,2-dichloroethene	mg/kg	0.1	<0.1	
		1,1-dichloroethane	mg/kg	0.1	<0.1	
		cis-1,2-dichloroethene	mg/kg	0.1	<0.1	
		Bromochloromethane	mg/kg	0.1	<0.1	
		1,2-dichloroethane	mg/kg	0.1	<0.1	
		1,1,1-trichloroethane	mg/kg	0.1	<0.1	
		1,1-dichloropropene	mg/kg	0.1	<0.1	
		Carbon tetrachloride	mg/kg	0.1	<0.1	
		Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	<0.1	
		1,1,2-trichloroethane	mg/kg	0.1	<0.1	
		1,3-dichloropropane	mg/kg	0.1	<0.1	
		Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	<0.1	
		1,1,1,2-tetrachloroethane	mg/kg	0.1	<0.1	
		cis-1,4-dichloro-2-butene	mg/kg	1	<1	
		1,1,2,2-tetrachloroethane	mg/kg	0.1	<0.1	
		1,2,3-trichloropropane	mg/kg	0.1	<0.1	
		trans-1,4-dichloro-2-butene	mg/kg	1	<1	
		1,2-dibromo-3-chloropropane	mg/kg	0.1	<0.1	
		Hexachlorobutadiene	mg/kg	0.1	<0.1	
		Halogenated Aromatics	Chlorobenzene	mg/kg	0.1	<0.1
			2-chlorotoluene	mg/kg	0.1	<0.1
			4-chlorotoluene	mg/kg	0.1	<0.1
			1,3-dichlorobenzene	mg/kg	0.1	<0.1
			1,4-dichlorobenzene	mg/kg	0.1	<0.1
			1,2-dichlorobenzene	mg/kg	0.1	<0.1
			1,2,4-trichlorobenzene	mg/kg	0.1	<0.1
			1,2,3-trichlorobenzene	mg/kg	0.1	<0.1
		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	
	Styrene (Vinyl benzene)		mg/kg	0.1	<0.1	
	Isopropylbenzene (Cumene)		mg/kg	0.1	<0.1	
	n-propylbenzene		mg/kg	0.1	<0.1	
	1,3,5-trimethylbenzene		mg/kg	0.1	<0.1	
	tert-butylbenzene		mg/kg	0.1	<0.1	
	1,2,4-trimethylbenzene		mg/kg	0.1	<0.1	
	sec-butylbenzene		mg/kg	0.1	<0.1	
	p-isopropyltoluene		mg/kg	0.1	<0.1	
	n-butylbenzene		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.

VOC's in Soil (continued)

Method: ME-(AU)-ENVJAN433

Sample Number	Parameter	Units	LOR	Result
LB145187.001	Polycyclic VOCs	Naphthalene	mg/kg	0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-
		d4-1,2-dichloroethane (Surrogate)	%	-
		d8-toluene (Surrogate)	%	-
		Bromofluorobenzene (Surrogate)	%	-
	Totals	Total BTEX	mg/kg	0.6
		Total MAH*	mg/kg	1.8
		Total Chlorinated VOC*	mg/kg	3
	Trihalomethanes	Chloroform	mg/kg	0.1
		Bromodichloromethane	mg/kg	0.1
		Chlorodibromomethane	mg/kg	0.1

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-ENVJAN433

Sample Number	Parameter	Units	LOR	Result
LB145187.001	TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-
		d4-1,2-dichloroethane (Surrogate)	%	-
		d8-toluene (Surrogate)	%	-

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

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

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

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

Conductivity and TDS by Calculation - Soil

Method: ME-(AU)-[ENV]JAN106

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177584.010	LB145205.014	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	53	32.2540755467	34	1
SE177634.005	LB145205.023	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	190	88.7002742231	31	1

Mercury in Soil

Method: ME-(AU)-[ENV]JAN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177584.008	LB145220.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE177634.005	LB145220.022	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

Method: ME-(AU)-[ENV]JAN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177553.001	LB145201.011	% Moisture	%w/w	0.5	93.4	93.4	31	0
SE177584.003	LB145201.022	% Moisture	%w/w	0.5	5.0	7.4	46	39
SE177634.002	LB145201.033	% Moisture	%w/w	0.5	14	16	37	17
SE177634.005	LB145201.037	% Moisture	%w/w	0.5	9.6	9.8	40	2

OC Pesticides in Soil

Method: ME-(AU)-[ENV]JAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177567.005	LB145181.014	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Lindane	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
		Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
		o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	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
		trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
		Dieldrin	mg/kg	0.2	1.4	1.2	38	20
		Endrin	mg/kg	0.2	<0.2	<0.2	200	0
		o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
		o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
		Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
		Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
		Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
		Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	30

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]JAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177567.005	LB145181.014	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthylene	mg/kg	0.1	<0.1	0.2	113	40
		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	0.4	0.5	52	22
		Anthracene	mg/kg	0.1	0.1	0.2	95	45
		Fluoranthene	mg/kg	0.1	0.9	1.1	40	19
		Pyrene	mg/kg	0.1	1.0	1.1	40	13
		Benzo(a)anthracene	mg/kg	0.1	0.5	0.6	48	21
		Chrysene	mg/kg	0.1	0.5	0.5	50	16

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

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

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-ENVJAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177567.005	LB145181.014	Benzo(b&j)fluoranthene	mg/kg	0.1	0.8	0.9	42	18
		Benzo(k)fluoranthene	mg/kg	0.1	0.3	0.5	55	28
		Benzo(a)pyrene	mg/kg	0.1	0.7	0.7	45	2
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.5	0.5	52	4
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	197	0
		Benzo(ghi)perylene	mg/kg	0.1	0.3	0.4	58	17
		Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0.9	0.9	33	4
		Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	1.0	1.0	40	3
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.9	1.0	31	4
		Total PAH (18)	mg/kg	0.8	5.9	7.1	42	19
		d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	2
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	0
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.5	30	10
SE177584.006	LB145181.033	Naphthalene	mg/kg	0.1	<0.1	0	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
		1-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
		Acenaphthylene	mg/kg	0.1	<0.1	0	200	0
		Acenaphthene	mg/kg	0.1	<0.1	0	200	0
		Fluorene	mg/kg	0.1	<0.1	0	200	0
		Phenanthrene	mg/kg	0.1	<0.1	0.01	200	0
		Anthracene	mg/kg	0.1	<0.1	0.01	200	0
		Fluoranthene	mg/kg	0.1	<0.1	0.02	200	0
		Pyrene	mg/kg	0.1	<0.1	0.02	200	0
		Benzo(a)anthracene	mg/kg	0.1	<0.1	0.02	200	0
		Chrysene	mg/kg	0.1	<0.1	0.01	200	0
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0.04	200	0
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.03	200	0
		Benzo(a)pyrene	mg/kg	0.1	<0.1	0.01	200	0
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0.01	200	0
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0	200	0
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	0.01	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	0	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	0.242	134	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	0.121	175	0
		Total PAH (18)	mg/kg	0.8	<0.8	0	200	0
		d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.39	30	3
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.46	30	7
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.57	30	7

PCBs in Soil

Method: ME-(AU)-ENVJAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177567.005	LB145181.014	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
		Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
		Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	30	1

pH in soil (1:5)

Method: ME-(AU)-ENVJAN101

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177584.010	LB145205.014	pH	pH Units	0.1	5.9	6.2	32	4
SE177634.005	LB145205.023	pH	pH Units	0.1	5.4	5.5	32	1

Speciated Phenols in Soil

Method: ME-(AU)-ENVJAN420

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

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

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

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

Speciated Phenols in Soil (continued)

Method: ME-(AU)-[ENV]JAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177584.003	LB145181.031	Phenol	mg/kg	0.5	<0.5	0.02	200	0
		2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	0	200	0
		3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	0	200	0
		Total Cresol	mg/kg	1.5	<1.5	0	200	0
		2-chlorophenol	mg/kg	0.5	<0.5	0	200	0
		2,4-dimethylphenol	mg/kg	0.5	<0.5	0	200	0
		2,6-dichlorophenol	mg/kg	0.5	<0.5	0	200	0
		2,4-dichlorophenol	mg/kg	0.5	<0.5	0.02	200	0
		2,4,6-trichlorophenol	mg/kg	0.5	<0.5	0	200	0
		2-nitrophenol	mg/kg	0.5	<0.5	0	200	0
		4-nitrophenol	mg/kg	1	<1	0	200	0
		2,4,5-trichlorophenol	mg/kg	0.5	<0.5	0	200	0
		2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	0	200	0
		Pentachlorophenol	mg/kg	0.5	<0.5	0	200	0
		2,4-dinitrophenol	mg/kg	2	<2	0	200	0
		4-chloro-3-methylphenol	mg/kg	2	<2	0.01	200	0
	Surrogates	2,4,6-Tribromophenol (Surrogate)	mg/kg	-	5.3	5.36	30	2
		d5-phenol (Surrogate)	mg/kg	-	2.1	2.08	30	1

Total Cyanide in soil by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]JAN077/AN287

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177567.001	LB145280.004	Total Cyanide	mg/kg	0.5	0.7	0.7	103	3

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

Method: ME-(AU)-[ENV]JAN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177634.005	LB145271.021	Arsenic, As	mg/kg	3	8	6	45	34
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	6.9	4.1	39	51 @
		Copper, Cu	mg/kg	0.5	8.9	8.0	36	10
		Nickel, Ni	mg/kg	0.5	0.7	<0.5	120	28
		Lead, Pb	mg/kg	1	7	5	46	21
		Zinc, Zn	mg/kg	0.5	6.8	5.5	63	22

TRH (Total Recoverable Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177567.005	LB145181.014	TRH C10-C14	mg/kg	20	<20	<20	200	0
		TRH C15-C28	mg/kg	45	<45	<45	200	0
		TRH C29-C36	mg/kg	45	<45	<45	200	0
		TRH C37-C40	mg/kg	100	<100	<100	200	0
		TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
		TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
	TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
		TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
		TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE177584.006	LB145181.032	TRH C10-C14	mg/kg	20	<20	0	200	0
		TRH C15-C28	mg/kg	45	<45	0	200	0
		TRH C29-C36	mg/kg	45	<45	0	200	0
		TRH C37-C40	mg/kg	100	<100	0	200	0
		TRH C10-C36 Total	mg/kg	110	<110	0	200	0
		TRH C10-C40 Total (F bands)	mg/kg	210	<210	0	200	0
	TRH F Bands	TRH >C10-C16	mg/kg	25	<25	0	200	0
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	0	200	0
		TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0
		TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0

VOC's in Soil

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

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

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

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

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

VOC's in Soil (continued)

Method: ME-(AU)-ENVJAN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177584.003	LB145187.023	Fumigants	2,2-dichloropropane	mg/kg	0.1	<0.1	0	200	0
			1,2-dichloropropane	mg/kg	0.1	<0.1	0	200	0
			cis-1,3-dichloropropene	mg/kg	0.1	<0.1	0	200	0
			trans-1,3-dichloropropene	mg/kg	0.1	<0.1	0	200	0
		Halogenated	Dichlorodifluoromethane (CFC-12)	mg/kg	1	<1	0	200	0
			Aliphatics	Chloromethane	mg/kg	1	<1	0	200
		Vinyl chloride (Chloroethene)		mg/kg	0.1	<0.1	0	200	0
		Chloroethane		mg/kg	1	<1	0	200	0
		Trichlorofluoromethane		mg/kg	1	<1	0	200	0
		1,1-dichloroethene		mg/kg	0.1	<0.1	0	200	0
		Dichloromethane (Methylene chloride)		mg/kg	0.5	<0.5	0	200	0
		Allyl chloride		mg/kg	0.1	<0.1	0	200	0
		trans-1,2-dichloroethene		mg/kg	0.1	<0.1	0	200	0
		1,1-dichloroethane		mg/kg	0.1	<0.1	0	200	0
		cis-1,2-dichloroethene		mg/kg	0.1	<0.1	0	200	0
		Bromochloromethane		mg/kg	0.1	<0.1	0	200	0
		1,2-dichloroethane		mg/kg	0.1	<0.1	0	200	0
		1,1,1-trichloroethane		mg/kg	0.1	<0.1	0	200	0
		1,1-dichloropropene		mg/kg	0.1	<0.1	0	200	0
		Carbon tetrachloride		mg/kg	0.1	<0.1	0	200	0
		Trichloroethene (Trichloroethylene -TCE)		mg/kg	0.1	<0.1	0	200	0
		1,1,2-trichloroethane		mg/kg	0.1	<0.1	0	200	0
		1,3-dichloropropane		mg/kg	0.1	<0.1	0	200	0
		Tetrachloroethene (Perchloroethylene,PCE)		mg/kg	0.1	<0.1	0	200	0
		1,1,1,2-tetrachloroethane		mg/kg	0.1	<0.1	0	200	0
		cis-1,4-dichloro-2-butene		mg/kg	1	<1	0	200	0
		1,1,2,2-tetrachloroethane		mg/kg	0.1	<0.1	0	200	0
		1,2,3-trichloropropane		mg/kg	0.1	<0.1	0	200	0
		trans-1,4-dichloro-2-butene		mg/kg	1	<1	0	200	0
		1,2-dibromo-3-chloropropane		mg/kg	0.1	<0.1	0	200	0
		Hexachlorobutadiene		mg/kg	0.1	<0.1	0	200	0
		Halogenated Aromatics		Chlorobenzene	mg/kg	0.1	<0.1	0	200
			2-chlorotoluene	mg/kg	0.1	<0.1	0	200	0
			4-chlorotoluene	mg/kg	0.1	<0.1	0	200	0
			1,3-dichlorobenzene	mg/kg	0.1	<0.1	0	200	0
			1,4-dichlorobenzene	mg/kg	0.1	<0.1	0	200	0
			1,2-dichlorobenzene	mg/kg	0.1	<0.1	0	200	0
			1,2,4-trichlorobenzene	mg/kg	0.1	<0.1	0	200	0
			1,2,3-trichlorobenzene	mg/kg	0.1	<0.1	0	200	0
		Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	0.02	200	0
			Toluene	mg/kg	0.1	<0.1	0.02	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	0.01	200	0
			m/p-xylene	mg/kg	0.2	<0.2	0	200	0
			o-xylene	mg/kg	0.1	<0.1	0.01	200	0
			Styrene (Vinyl benzene)	mg/kg	0.1	<0.1	0.05	200	0
			Isopropylbenzene (Cumene)	mg/kg	0.1	<0.1	0	200	0
			n-propylbenzene	mg/kg	0.1	<0.1	0	200	0
			1,3,5-trimethylbenzene	mg/kg	0.1	<0.1	0	200	0
			tert-butylbenzene	mg/kg	0.1	<0.1	0	200	0
			1,2,4-trimethylbenzene	mg/kg	0.1	<0.1	0	200	0
			sec-butylbenzene	mg/kg	0.1	<0.1	0	200	0
			p-isopropyltoluene	mg/kg	0.1	<0.1	0	200	0
			n-butylbenzene	mg/kg	0.1	<0.1	0	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.8	5.42	50	13
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.9	5.31	50	8
			d8-toluene (Surrogate)	mg/kg	-	4.9	4.98	50	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.1	4.3	50	5
		Totals	Total Xylenes	mg/kg	0.3	<0.3	0.01	200	0
			Total BTEX	mg/kg	0.6	<0.6	0.06	200	0
			Total MAH*	mg/kg	1.8	<1.8	0.11	200	0

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

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

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

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

VOC's in Soil (continued)

Method: ME-(AU)-ENVJAN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177584.003	LB145187.023	Totals	Total Chlorinated VOC*	mg/kg	3	<3.0	0	200	0
		Trihalomethanes	Chloroform	mg/kg	0.1	<0.1	0	200	0
			Bromodichloromethane	mg/kg	0.1	<0.1	0	200	0
			Chlorodibromomethane	mg/kg	0.1	<0.1	0	200	0
SE177584.010	LB145187.022	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			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	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	3.9	50	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.9	3.9	50	0
			d8-toluene (Surrogate)	mg/kg	-	4.1	4.8	50	16
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.7	4.3	50	16
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-ENVJAN433

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE177584.003	LB145187.025	TRH C6-C10	mg/kg	25	<25	0	200	0	
		TRH C6-C9	mg/kg	20	<20	0	200	0	
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.3	4.86	30	13
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	4.72	30	7	
		d8-toluene (Surrogate)	mg/kg	-	4.9	5.18	30	6	
		Bromofluorobenzene (Surrogate)	mg/kg	-	3.9	4.19	30	6	
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	0.03	200	0
		TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	-0.07	200	0	
SE177584.010	LB145187.022	TRH C6-C10	mg/kg	25	<25	<25	200	0	
		TRH C6-C9	mg/kg	20	<20	<20	200	0	
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	3.9	30	3
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.9	3.9	30	0	
		d8-toluene (Surrogate)	mg/kg	-	4.1	4.8	30	16	
		Bromofluorobenzene (Surrogate)	mg/kg	-	3.7	4.3	30	16	
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
		TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0	

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

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

Conductivity and TDS by Calculation - Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145205.002	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	NA	303	85 - 115	96

Hexavalent Chromium in Soil UV/Vis

Method: ME-(AU)-[ENV]AN075/AN201

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145193.012	Hexavalent Chromium, Cr6+	mg/kg	0.5	NA	20	70 - 130	94

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145220.002	Mercury	mg/kg	0.05	0.18	0.2	70 - 130	89

OC Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145181.002	Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	103
	Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	107
	Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	92
	Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	108
	Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	95
	p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	78
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.15	40 - 130	95

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145181.002	Naphthalene	mg/kg	0.1	4.3	4	60 - 140	107
	Acenaphthylene	mg/kg	0.1	4.3	4	60 - 140	108
	Acenaphthene	mg/kg	0.1	4.0	4	60 - 140	101
	Phenanthrene	mg/kg	0.1	4.4	4	60 - 140	111
	Anthracene	mg/kg	0.1	4.2	4	60 - 140	106
	Fluoranthene	mg/kg	0.1	4.3	4	60 - 140	107
	Pyrene	mg/kg	0.1	4.2	4	60 - 140	104
	Benzo(a)pyrene	mg/kg	0.1	4.6	4	60 - 140	115
Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94
	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	102
	d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	106

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145181.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	110

pH in soil (1:5)

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145205.003	pH	pH Units	0.1	7.4	7.415	98 - 102	100

Speciated Phenols in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145181.002	Phenol	mg/kg	0.5	1.0	1	70 - 130	101
	2,4-dichlorophenol	mg/kg	0.5	1.1	1	70 - 130	110
	2,4,6-trichlorophenol	mg/kg	0.5	1.0	1	70 - 130	101
	Pentachlorophenol	mg/kg	0.5	0.7	1	70 - 130	73
	2,4,6-Tribromophenol (Surrogate)	mg/kg	-	5.7	5	40 - 130	114
Surrogates	d5-phenol (Surrogate)	mg/kg	-	2.3	2	40 - 130	113

Total Cyanide in soil by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN077/AN287

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

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

Total Cyanide in soil by Discrete Analyser (Aquakem) (continued)
Method: ME-(AU)-[ENV]AN077/AN287

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145280.002	Total Cyanide	mg/kg	0.5	<0.5	0.25	70 - 130	103

Total Fluoride in Soil
Method: ME-(AU)-[ENV]AN142

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145166.002	Total Fluoride	mg/kg	50	NA	200	70 - 130	106

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 %
LB145271.002	Silver, Ag	mg/kg	1	2	2.1	72 - 128	97
	Arsenic, As	mg/kg	3	340	336.32	79 - 120	101
	Cadmium, Cd	mg/kg	0.3	410	416.6	69 - 131	99
	Chromium, Cr	mg/kg	0.3	41	35.2	80 - 120	116
	Copper, Cu	mg/kg	0.5	330	370.46	80 - 120	90
	Molybdenum, Mo	mg/kg	1	430	417	80 - 120	102
	Nickel, Ni	mg/kg	0.5	190	210.88	79 - 120	89
	Lead, Pb	mg/kg	1	90	107.87	79 - 120	83
	Selenium, Se	mg/kg	3	82	83.3	80 - 120	98
	Tin, Sn	mg/kg	3	410	417	80 - 120	98
	Zinc, Zn	mg/kg	0.5	290	301.27	80 - 121	96

TRH (Total Recoverable Hydrocarbons) in Soil
Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145181.002	TRH C10-C14	mg/kg	20	34	40	60 - 140	85
	TRH C15-C28	mg/kg	45	50	40	60 - 140	125
	TRH C29-C36	mg/kg	45	<45	40	60 - 140	110
	TRH F Bands	TRH >C10-C16	mg/kg	25	40	60 - 140	100
		TRH >C16-C34 (F3)	mg/kg	90	<90	60 - 140	128
		TRH >C34-C40 (F4)	mg/kg	120	<120	60 - 140	110

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB145187.002	Halogenated	1,1-dichloroethene	mg/kg	0.1	1.8	2.56	60 - 140	71
	Aliphatics	1,2-dichloroethane	mg/kg	0.1	2.3	2.56	60 - 140	90
		Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	3.2	2.56	60 - 140	124
	Halogenated	Chlorobenzene	mg/kg	0.1	3.4	2.56	60 - 140	131
	Monocyclic	Benzene	mg/kg	0.1	2.1	2.9	60 - 140	73
	Aromatic	Toluene	mg/kg	0.1	1.9	2.9	60 - 140	67
		Ethylbenzene	mg/kg	0.1	3.5	2.9	60 - 140	121
		m/p-xylene	mg/kg	0.2	7.2	5.8	60 - 140	124
		o-xylene	mg/kg	0.1	3.5	2.9	60 - 140	119
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.5	5	60 - 140	90
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	5	60 - 140	88
		d8-toluene (Surrogate)	mg/kg	-	4.4	5	60 - 140	88
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	5	60 - 140	79
	Trihalomethan	Chloroform	mg/kg	0.1	2.0	2.56	60 - 140	77

Volatile Petroleum Hydrocarbons in Soil
Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB145187.002	TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	84	
	TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	72	
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.0	5	60 - 140	80
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	5	60 - 140	82
		d8-toluene (Surrogate)	mg/kg	-	4.2	5	60 - 140	83
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.9	5	60 - 140	97
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	75

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%
SE177504.021	LB145220.004	Mercury	mg/kg	0.05	0.27	0.04584799144	0.2	112

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Original	Spike	Recovery%
SE177475.005	LB145181.032	Naphthalene	mg/kg	0.1	<0.1	4	100
		2-methylnaphthalene	mg/kg	0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	-	-
		Acenaphthylene	mg/kg	0.1	<0.1	4	93
		Acenaphthene	mg/kg	0.1	<0.1	4	90
		Fluorene	mg/kg	0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	0.2	4	102
		Anthracene	mg/kg	0.1	<0.1	4	101
		Fluoranthene	mg/kg	0.1	0.6	4	99
		Pyrene	mg/kg	0.1	0.6	4	97
		Benzo(a)anthracene	mg/kg	0.1	0.3	-	-
		Chrysene	mg/kg	0.1	0.3	-	-
		Benzo(b&j)fluoranthene	mg/kg	0.1	0.4	-	-
		Benzo(k)fluoranthene	mg/kg	0.1	0.2	-	-
		Benzo(a)pyrene	mg/kg	0.1	0.4	4	100
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.2	-	-
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	-	-
		Benzo(ghi)perylene	mg/kg	0.1	0.2	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0.5	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.6	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.5	-	-
		Total PAH (18)	mg/kg	0.8	3.4	-	-
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	-	80
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	-	86
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	-	96

Total Fluoride in Soil

Method: ME-(AU)-[ENV]AN142

QC Sample	Sample Number	Parameter	Units	LOR	Original	Spike	Recovery%
SE177584.009	LB145166.007	Total Fluoride	mg/kg	50	190	-	-

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%
SE177584.001	LB145271.004	Arsenic, As	mg/kg	3	48	3	50	90
		Cadmium, Cd	mg/kg	0.3	48	<0.3	50	96
		Chromium, Cr	mg/kg	0.3	54	6.4	50	95
		Copper, Cu	mg/kg	0.5	66	21	50	90
		Nickel, Ni	mg/kg	0.5	52	5.1	50	94
		Lead, Pb	mg/kg	1	61	16	50	91
		Zinc, Zn	mg/kg	0.5	67	29	50	76

TRH (Total Recoverable Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Original	Spike	Recovery%
SE177475.005	LB145181.031	TRH C10-C14	mg/kg	20	<20	40	110
		TRH C15-C28	mg/kg	45	57	40	55 @
		TRH C29-C36	mg/kg	45	<45	40	108
		TRH C37-C40	mg/kg	100	<100	-	-
		TRH C10-C36 Total	mg/kg	110	<110	-	-
		TRH C10-C40 Total (F bands)	mg/kg	210	<210	-	-
	TRH F Bands	TRH >C10-C16	mg/kg	25	<25	40	138
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	-	-
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	50 @
		TRH >C34-C40 (F4)	mg/kg	120	<120	-	-

VOC's in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR
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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%
SE177567.001	LB145187.004	Monocyclic	Benzene	mg/kg	0.1	2.4	<0.1	2.9	83
			Aromatic	Toluene	mg/kg	0.1	2.2	<0.1	2.9
			Ethylbenzene	mg/kg	0.1	2.7	<0.1	2.9	91
			m/p-xylene	mg/kg	0.2	6.8	0.6	5.8	108
			o-xylene	mg/kg	0.1	3.3	0.2	2.9	107
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	0.2	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.9	3.9	-	78
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.6	3.9	-	72
			d8-toluene (Surrogate)	mg/kg	-	3.9	4.8	-	77
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.7	4.0	-	95
Totals	Total Xylenes	mg/kg	0.3	10	0.8	-	-		
	Total BTEX	mg/kg	0.6	17	0.9	-	-		
SE177584.009	LB145187.024	Fumigants	2,2-dichloropropane	mg/kg	0.1		<0.1	-	-
			1,2-dichloropropane	mg/kg	0.1		<0.1	-	-
			cis-1,3-dichloropropene	mg/kg	0.1		<0.1	-	-
			trans-1,3-dichloropropene	mg/kg	0.1		<0.1	-	-
		Halogenated	Dichlorodifluoromethane (CFC-12)	mg/kg	1		<1	-	-
			Aliphatics	Chloromethane	mg/kg	1		<1	-
		Vinyl chloride (Chloroethene)		mg/kg	0.1		<0.1	-	-
		Chloroethane	mg/kg	1		<1	-	-	
		Trichlorofluoromethane	mg/kg	1		<1	-	-	
		1,1-dichloroethene	mg/kg	0.1		<0.1	2.56	68	
		Dichloromethane (Methylene chloride)	mg/kg	0.5		<0.5	-	-	
		Allyl chloride	mg/kg	0.1		<0.1	-	-	
		trans-1,2-dichloroethene	mg/kg	0.1		<0.1	-	-	
		1,1-dichloroethane	mg/kg	0.1		<0.1	-	-	
		cis-1,2-dichloroethene	mg/kg	0.1		<0.1	-	-	
		Bromochloromethane	mg/kg	0.1		<0.1	-	-	
		1,2-dichloroethane	mg/kg	0.1		<0.1	2.56	87	
		1,1,1-trichloroethane	mg/kg	0.1		<0.1	-	-	
		1,1-dichloropropene	mg/kg	0.1		<0.1	-	-	
		Carbon tetrachloride	mg/kg	0.1		<0.1	-	-	
		Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1		<0.1	2.56	123	
		1,1,2-trichloroethane	mg/kg	0.1		<0.1	-	-	
		1,3-dichloropropane	mg/kg	0.1		<0.1	-	-	
		Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1		<0.1	-	-	
		1,1,1,2-tetrachloroethane	mg/kg	0.1		<0.1	-	-	
		cis-1,4-dichloro-2-butene	mg/kg	1		<1	-	-	
		1,1,2,2-tetrachloroethane	mg/kg	0.1		<0.1	-	-	
		1,2,3-trichloropropane	mg/kg	0.1		<0.1	-	-	
		trans-1,4-dichloro-2-butene	mg/kg	1		<1	-	-	
		1,2-dibromo-3-chloropropane	mg/kg	0.1		<0.1	-	-	
		Hexachlorobutadiene	mg/kg	0.1		<0.1	-	-	
		Halogenated	Chlorobenzene	mg/kg	0.1		<0.1	2.56	134
			Aromatics	2-chlorotoluene	mg/kg	0.1		<0.1	-
		4-chlorotoluene		mg/kg	0.1		<0.1	-	-
		1,3-dichlorobenzene		mg/kg	0.1		<0.1	-	-
		1,4-dichlorobenzene		mg/kg	0.1		<0.1	-	-
		1,2-dichlorobenzene		mg/kg	0.1		<0.1	-	-
		1,2,4-trichlorobenzene		mg/kg	0.1		<0.1	-	-
		1,2,3-trichlorobenzene		mg/kg	0.1		<0.1	-	-
		Monocyclic	Benzene	mg/kg	0.1		<0.1	2.9	77
			Aromatic	Toluene	mg/kg	0.1		<0.1	2.9
		Ethylbenzene		mg/kg	0.1		<0.1	2.9	120
		m/p-xylene		mg/kg	0.2		<0.2	5.8	124
		o-xylene		mg/kg	0.1		<0.1	2.9	121
		Styrene (Vinyl benzene)		mg/kg	0.1		<0.1	-	-
		Isopropylbenzene (Cumene)		mg/kg	0.1		<0.1	-	-
		n-propylbenzene		mg/kg	0.1		<0.1	-	-
		1,3,5-trimethylbenzene		mg/kg	0.1		<0.1	-	-
		tert-butylbenzene		mg/kg	0.1		<0.1	-	-

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%
SE177584.009	LB145187.024	Monocyclic	1,2,4-trimethylbenzene	mg/kg	0.1	<0.1	-	-
		Aromatic	sec-butylbenzene	mg/kg	0.1	<0.1	-	-
			p-isopropyltoluene	mg/kg	0.1	<0.1	-	-
			n-butylbenzene	mg/kg	0.1	<0.1	-	-
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.3	-	90
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.0	-	86
			d8-toluene (Surrogate)	mg/kg	-	5.0	-	90
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	-	87
		Totals	Total Xylenes	mg/kg	0.3	<0.3	-	-
			Total BTEX	mg/kg	0.6	<0.6	-	-
			Total MAH*	mg/kg	1.8	<1.8	-	-
			Total Chlorinated VOC*	mg/kg	3	<3.0	-	-
		Trihalomethanes	Chloroform	mg/kg	0.1	<0.1	2.56	78
			Bromodichloromethane	mg/kg	0.1	<0.1	-	-
			Chlorodibromomethane	mg/kg	0.1	<0.1	-	-

Volatile Petroleum Hydrocarbons in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE177567.001	LB145187.004	TRH C6-C10	mg/kg	25	35	<25	24.65	101
		TRH C6-C9	mg/kg	20	29	<20	23.2	98
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.9	-	78
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.6	-	72
			d8-toluene (Surrogate)	mg/kg	-	3.9	-	77
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.7	-	95
		VPH F	Benzene (F0)	mg/kg	0.1	2.4	<0.1	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	113

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

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

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

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

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the 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 : <http://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.
 - 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 Analytical Report comments for further information.

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Order Number (Not specified)
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SGS Reference SE177739 R0
Date Received 10/4/2018
Date Reported 13/4/2018

COMMENTS

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

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

Asbestos analysed by Approved Identifier Ravee Sivasubramaniam.

SIGNATORIES



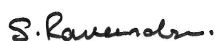
Akheeque Beniamen
Chemist



Dong Liang
Metals/Inorganics Team Leader



Kamrul Ahsan
Senior Chemist



Ravee Sivasubramaniam
Hygiene Team Leader

VOC's in Soil [AN433] Tested: 11/4/2018

PARAMETER	UOM	LOR	E14	E15	E16	E17	E18
			SOIL - 9/4/2018 SE177739.001	SOIL - 9/4/2018 SE177739.002	SOIL - 9/4/2018 SE177739.003	SOIL - 9/4/2018 SE177739.004	SOIL - 9/4/2018 SE177739.005
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorodifluoromethane (CFC-12)	mg/kg	1	-	-	<1	-	<1
Chloromethane	mg/kg	1	-	-	<1	-	<1
Vinyl chloride (Chloroethene)	mg/kg	0.1	-	-	<0.1	-	<0.1
Styrene (Vinyl benzene)	mg/kg	0.1	-	-	<0.1	-	<0.1
Chloroethane	mg/kg	1	-	-	<1	-	<1
Trichlorofluoromethane	mg/kg	1	-	-	<1	-	<1
Isopropylbenzene (Cumene)	mg/kg	0.1	-	-	<0.1	-	<0.1
1,1-dichloroethene	mg/kg	0.1	-	-	<0.1	-	<0.1
Dichloromethane (Methylene chloride)	mg/kg	0.5	-	-	<0.5	-	<0.5
n-propylbenzene	mg/kg	0.1	-	-	<0.1	-	<0.1
Allyl chloride	mg/kg	0.1	-	-	<0.1	-	<0.1
1,3,5-trimethylbenzene	mg/kg	0.1	-	-	<0.1	-	<0.1
tert-butylbenzene	mg/kg	0.1	-	-	<0.1	-	<0.1
trans-1,2-dichloroethene	mg/kg	0.1	-	-	<0.1	-	<0.1
1,2,4-trimethylbenzene	mg/kg	0.1	-	-	<0.1	-	<0.1
1,1-dichloroethane	mg/kg	0.1	-	-	<0.1	-	<0.1
sec-butylbenzene	mg/kg	0.1	-	-	<0.1	-	<0.1
cis-1,2-dichloroethene	mg/kg	0.1	-	-	<0.1	-	<0.1
p-isopropyltoluene	mg/kg	0.1	-	-	<0.1	-	<0.1
Bromochloromethane	mg/kg	0.1	-	-	<0.1	-	<0.1
n-butylbenzene	mg/kg	0.1	-	-	<0.1	-	<0.1
Chloroform	mg/kg	0.1	-	-	<0.1	-	<0.1
2,2-dichloropropane	mg/kg	0.1	-	-	<0.1	-	<0.1
1,2-dichloroethane	mg/kg	0.1	-	-	<0.1	-	<0.1
Total MAH*	mg/kg	1.8	-	-	<1.8	-	<1.8
1,1,1-trichloroethane	mg/kg	0.1	-	-	<0.1	-	<0.1
1,1-dichloropropene	mg/kg	0.1	-	-	<0.1	-	<0.1
Carbon tetrachloride	mg/kg	0.1	-	-	<0.1	-	<0.1
1,2-dichloropropane	mg/kg	0.1	-	-	<0.1	-	<0.1
Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	-	-	<0.1	-	<0.1
Bromodichloromethane	mg/kg	0.1	-	-	<0.1	-	<0.1
cis-1,3-dichloropropene	mg/kg	0.1	-	-	<0.1	-	<0.1
trans-1,3-dichloropropene	mg/kg	0.1	-	-	<0.1	-	<0.1
1,1,2-trichloroethane	mg/kg	0.1	-	-	<0.1	-	<0.1
1,3-dichloropropane	mg/kg	0.1	-	-	<0.1	-	<0.1
Chlorodibromomethane	mg/kg	0.1	-	-	<0.1	-	<0.1
Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	-	-	<0.1	-	<0.1
1,1,1,2-tetrachloroethane	mg/kg	0.1	-	-	<0.1	-	<0.1
Chlorobenzene	mg/kg	0.1	-	-	<0.1	-	<0.1
cis-1,4-dichloro-2-butene	mg/kg	1	-	-	<1	-	<1
1,1,2,2-tetrachloroethane	mg/kg	0.1	-	-	<0.1	-	<0.1
1,2,3-trichloropropane	mg/kg	0.1	-	-	<0.1	-	<0.1
trans-1,4-dichloro-2-butene	mg/kg	1	-	-	<1	-	<1
2-chlorotoluene	mg/kg	0.1	-	-	<0.1	-	<0.1
4-chlorotoluene	mg/kg	0.1	-	-	<0.1	-	<0.1
1,3-dichlorobenzene	mg/kg	0.1	-	-	<0.1	-	<0.1
1,4-dichlorobenzene	mg/kg	0.1	-	-	<0.1	-	<0.1
1,2-dichlorobenzene	mg/kg	0.1	-	-	<0.1	-	<0.1

VOC's in Soil [AN433] Tested: 11/4/2018 (continued)

PARAMETER	UOM	LOR	E14	E15	E16	E17	E18
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			9/4/2018	9/4/2018	9/4/2018	9/4/2018	9/4/2018
			SE177739.001	SE177739.002	SE177739.003	SE177739.004	SE177739.005
1,2-dibromo-3-chloropropane	mg/kg	0.1	-	-	<0.1	-	<0.1
1,2,4-trichlorobenzene	mg/kg	0.1	-	-	<0.1	-	<0.1
Hexachlorobutadiene	mg/kg	0.1	-	-	<0.1	-	<0.1
1,2,3-trichlorobenzene	mg/kg	0.1	-	-	<0.1	-	<0.1
Total Chlorinated VOC*	mg/kg	3	-	-	<3.0	-	<3.0

VOC's in Soil [AN433] Tested: 11/4/2018 (continued)

PARAMETER	UOM	LOR	E19	E20	E21
			SOIL - 9/4/2018 SE177739.006	SOIL - 9/4/2018 SE177739.007	SOIL - 9/4/2018 SE177739.008
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
Dichlorodifluoromethane (CFC-12)	mg/kg	1	-	<1	-
Chloromethane	mg/kg	1	-	<1	-
Vinyl chloride (Chloroethene)	mg/kg	0.1	-	<0.1	-
Styrene (Vinyl benzene)	mg/kg	0.1	-	<0.1	-
Chloroethane	mg/kg	1	-	<1	-
Trichlorofluoromethane	mg/kg	1	-	<1	-
Isopropylbenzene (Cumene)	mg/kg	0.1	-	<0.1	-
1,1-dichloroethene	mg/kg	0.1	-	<0.1	-
Dichloromethane (Methylene chloride)	mg/kg	0.5	-	<0.5	-
n-propylbenzene	mg/kg	0.1	-	<0.1	-
Allyl chloride	mg/kg	0.1	-	<0.1	-
1,3,5-trimethylbenzene	mg/kg	0.1	-	<0.1	-
tert-butylbenzene	mg/kg	0.1	-	<0.1	-
trans-1,2-dichloroethene	mg/kg	0.1	-	<0.1	-
1,2,4-trimethylbenzene	mg/kg	0.1	-	<0.1	-
1,1-dichloroethane	mg/kg	0.1	-	<0.1	-
sec-butylbenzene	mg/kg	0.1	-	<0.1	-
cis-1,2-dichloroethene	mg/kg	0.1	-	<0.1	-
p-isopropyltoluene	mg/kg	0.1	-	<0.1	-
Bromochloromethane	mg/kg	0.1	-	<0.1	-
n-butylbenzene	mg/kg	0.1	-	<0.1	-
Chloroform	mg/kg	0.1	-	<0.1	-
2,2-dichloropropane	mg/kg	0.1	-	<0.1	-
1,2-dichloroethane	mg/kg	0.1	-	<0.1	-
Total MAH*	mg/kg	1.8	-	<1.8	-
1,1,1-trichloroethane	mg/kg	0.1	-	<0.1	-
1,1-dichloropropene	mg/kg	0.1	-	<0.1	-
Carbon tetrachloride	mg/kg	0.1	-	<0.1	-
1,2-dichloropropane	mg/kg	0.1	-	<0.1	-
Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	-	<0.1	-
Bromodichloromethane	mg/kg	0.1	-	<0.1	-
cis-1,3-dichloropropene	mg/kg	0.1	-	<0.1	-
trans-1,3-dichloropropene	mg/kg	0.1	-	<0.1	-
1,1,2-trichloroethane	mg/kg	0.1	-	<0.1	-
1,3-dichloropropane	mg/kg	0.1	-	<0.1	-
Chlorodibromomethane	mg/kg	0.1	-	<0.1	-
Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	-	<0.1	-
1,1,1,2-tetrachloroethane	mg/kg	0.1	-	<0.1	-
Chlorobenzene	mg/kg	0.1	-	<0.1	-
cis-1,4-dichloro-2-butene	mg/kg	1	-	<1	-
1,1,2,2-tetrachloroethane	mg/kg	0.1	-	<0.1	-
1,2,3-trichloropropane	mg/kg	0.1	-	<0.1	-
trans-1,4-dichloro-2-butene	mg/kg	1	-	<1	-
2-chlorotoluene	mg/kg	0.1	-	<0.1	-
4-chlorotoluene	mg/kg	0.1	-	<0.1	-
1,3-dichlorobenzene	mg/kg	0.1	-	<0.1	-
1,4-dichlorobenzene	mg/kg	0.1	-	<0.1	-
1,2-dichlorobenzene	mg/kg	0.1	-	<0.1	-

VOC's in Soil [AN433] Tested: 11/4/2018 (continued)

PARAMETER	UOM	LOR	E19	E20	E21
			SOIL - 9/4/2018 SE177739.006	SOIL - 9/4/2018 SE177739.007	SOIL - 9/4/2018 SE177739.008
1,2-dibromo-3-chloropropane	mg/kg	0.1	-	<0.1	-
1,2,4-trichlorobenzene	mg/kg	0.1	-	<0.1	-
Hexachlorobutadiene	mg/kg	0.1	-	<0.1	-
1,2,3-trichlorobenzene	mg/kg	0.1	-	<0.1	-
Total Chlorinated VOC*	mg/kg	3	-	<3.0	-

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 11/4/2018

PARAMETER	UOM	LOR	E14	E15	E16	E17	E18
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			9/4/2018 SE177739.001	9/4/2018 SE177739.002	9/4/2018 SE177739.003	9/4/2018 SE177739.004	9/4/2018 SE177739.005
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	E19	E20	E21
			SOIL	SOIL	SOIL
			-	-	-
			9/4/2018 SE177739.006	9/4/2018 SE177739.007	9/4/2018 SE177739.008
TRH C6-C9	mg/kg	20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 11/4/2018

PARAMETER	UOM	LOR	E14	E15	E16	E17	E18
			SOIL	SOIL	SOIL	SOIL	SOIL
			9/4/2018 SE177739.001	9/4/2018 SE177739.002	9/4/2018 SE177739.003	9/4/2018 SE177739.004	9/4/2018 SE177739.005
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	E19	E20	E21
			SOIL	SOIL	SOIL
			9/4/2018 SE177739.006	9/4/2018 SE177739.007	9/4/2018 SE177739.008
TRH C10-C14	mg/kg	20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 11/4/2018

PARAMETER	UOM	LOR	E14	E15	E16	E17	E18
			SOIL	SOIL	SOIL	SOIL	SOIL
			9/4/2018 SE177739.001	9/4/2018 SE177739.002	9/4/2018 SE177739.003	9/4/2018 SE177739.004	9/4/2018 SE177739.005
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	E19	E20	E21
			SOIL	SOIL	SOIL
			9/4/2018 SE177739.006	9/4/2018 SE177739.007	9/4/2018 SE177739.008
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8

OC Pesticides in Soil [AN420] Tested: 11/4/2018

PARAMETER	UOM	LOR	E16	E18	E20
			SOIL - 9/4/2018 SE177739.003	SOIL - 9/4/2018 SE177739.005	SOIL - 9/4/2018 SE177739.007
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1

PCBs in Soil [AN420] Tested: 11/4/2018

PARAMETER	UOM	LOR	E16	E18	E20
			SOIL - 9/4/2018 SE177739.003	SOIL - 9/4/2018 SE177739.005	SOIL - 9/4/2018 SE177739.007
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1

Speciated Phenols in Soil [AN420] Tested: 11/4/2018

PARAMETER	UOM	LOR	E16	E18	E20
			SOIL - 9/4/2018 SE177739.003	SOIL - 9/4/2018 SE177739.005	SOIL - 9/4/2018 SE177739.007
Phenol	mg/kg	0.5	<0.5	<0.5	<0.5
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	<0.5
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	<1
Total Cresol	mg/kg	1.5	<1.5	<1.5	<1.5
2-chlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5
2-nitrophenol	mg/kg	0.5	<0.5	<0.5	<0.5
4-nitrophenol	mg/kg	1	<1	<1	<1
2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	<1
Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	mg/kg	2	<2	<2	<2
4-chloro-3-methylphenol	mg/kg	2	<2	<2	<2

pH in soil (1:5) [AN101] Tested: 12/4/2018

			E14	E15	E17	E19	E21
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			9/4/2018	9/4/2018	9/4/2018	9/4/2018	9/4/2018
PARAMETER	UOM	LOR	SE177739.001	SE177739.002	SE177739.004	SE177739.006	SE177739.008
pH	pH Units	0.1	6.5	5.7	6.5	6.5	5.8

Conductivity and TDS by Calculation - Soil [AN106] Tested: 12/4/2018

			E14	E15	E17	E19	E21
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			9/4/2018	9/4/2018	9/4/2018	9/4/2018	9/4/2018
PARAMETER	UOM	LOR	SE177739.001	SE177739.002	SE177739.004	SE177739.006	SE177739.008
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	67	51	67	70	51

Total Cyanide in soil by Discrete Analyser (Aquakem) [AN077/AN287] Tested: 11/4/2018

PARAMETER	UOM	LOR	E16	E18	E20
			SOIL - 9/4/2018 SE177739.003	SOIL - 9/4/2018 SE177739.005	SOIL - 9/4/2018 SE177739.007
Total Cyanide	mg/kg	0.5	<0.5	<0.5	<0.5
Total Cyanide Post Chlorination	mg/kg	0.5	-	-	-
Cyanide Amenable to Chlorination	mg/kg	0.5	-	-	-

Hexavalent Chromium in Soil UV/Vis [AN075/AN201] Tested: 12/4/2018

			E16	E18	E20
			SOIL	SOIL	SOIL
			-	-	-
			9/4/2018	9/4/2018	9/4/2018
			SE177739.003	SE177739.005	SE177739.007
PARAMETER	UOM	LOR			
Hexavalent Chromium, Cr6+	mg/kg	0.5	0.9	<0.5	<0.5

Total Fluoride in Soil [AN142] Tested: 12/4/2018

			E16	E18	E20
			SOIL	SOIL	SOIL
			-	-	-
			9/4/2018	9/4/2018	9/4/2018
			SE177739.003	SE177739.005	SE177739.007
PARAMETER	UOM	LOR			
Total Fluoride	mg/kg	50	300	300	250

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 12/4/2018

PARAMETER	UOM	LOR	E14	E15	E16	E17	E18
			SOIL	SOIL	SOIL	SOIL	SOIL
			9/4/2018 SE177739.001	9/4/2018 SE177739.002	9/4/2018 SE177739.003	9/4/2018 SE177739.004	9/4/2018 SE177739.005
Arsenic, As	mg/kg	3	4	<3	<3	4	<3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	11	4.1	4.4	10	2.3
Copper, Cu	mg/kg	0.5	31	20	15	31	16
Lead, Pb	mg/kg	1	15	16	16	18	20
Nickel, Ni	mg/kg	0.5	12	21	2.4	12	1.0
Zinc, Zn	mg/kg	0.5	43	88	12	44	7.9
Molybdenum, Mo	mg/kg	1	-	-	<1	-	<1
Tin, Sn	mg/kg	3	-	-	<3	-	<3
Selenium, Se	mg/kg	3	-	-	<3	-	<3
Silver, Ag	mg/kg	1	-	-	<1	-	<1

PARAMETER	UOM	LOR	E19	E20	E21	E22
			SOIL	SOIL	SOIL	SOIL
			9/4/2018 SE177739.006	9/4/2018 SE177739.007	9/4/2018 SE177739.008	9/4/2018 SE177739.009
Arsenic, As	mg/kg	3	5	4	5	-
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	-
Chromium, Cr	mg/kg	0.3	12	10	12	-
Copper, Cu	mg/kg	0.5	40	27	26	-
Lead, Pb	mg/kg	1	16	14	22	19
Nickel, Ni	mg/kg	0.5	16	10	14	-
Zinc, Zn	mg/kg	0.5	73	33	34	-
Molybdenum, Mo	mg/kg	1	-	<1	-	-
Tin, Sn	mg/kg	3	-	<3	-	-
Selenium, Se	mg/kg	3	-	<3	-	-
Silver, Ag	mg/kg	1	-	<1	-	-

Mercury in Soil [AN312] Tested: 12/4/2018

			E14	E15	E16	E17	E18
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			9/4/2018	9/4/2018	9/4/2018	9/4/2018	9/4/2018
PARAMETER	UOM	LOR	SE177739.001	SE177739.002	SE177739.003	SE177739.004	SE177739.005
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

			E19	E20	E21
			SOIL	SOIL	SOIL
			-	-	-
			9/4/2018	9/4/2018	9/4/2018
PARAMETER	UOM	LOR	SE177739.006	SE177739.007	SE177739.008
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 11/4/2018

			E14	E15	E16	E17	E18
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			9/4/2018	9/4/2018	9/4/2018	9/4/2018	9/4/2018
PARAMETER	UOM	LOR	SE177739.001	SE177739.002	SE177739.003	SE177739.004	SE177739.005
% Moisture	%w/w	0.5	4.7	12	13	4.8	12

			E19	E20	E21	E22
			SOIL	SOIL	SOIL	SOIL
			-	-	-	-
			9/4/2018	9/4/2018	9/4/2018	9/4/2018
PARAMETER	UOM	LOR	SE177739.006	SE177739.007	SE177739.008	SE177739.009
% Moisture	%w/w	0.5	4.7	4.7	12	12

Fibre Identification in soil [AN602] Tested: 12/4/2018

			E14	E15	E16	E17	E18
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			9/4/2018	9/4/2018	9/4/2018	9/4/2018	9/4/2018
			SE177739.001	SE177739.002	SE177739.003	SE177739.004	SE177739.005
PARAMETER	UOM	LOR					
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

			E19	E20	E21
			SOIL	SOIL	SOIL
			-	-	-
			9/4/2018	9/4/2018	9/4/2018
			SE177739.006	SE177739.007	SE177739.008
PARAMETER	UOM	LOR			
Asbestos Detected	No unit	-	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01

METHOD

METHODOLOGY SUMMARY

AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN075	This method uses an alkaline digestion to solubilise both water-soluble and water-insoluble forms of hexavalent chromium in solids. The solution is then pH adjusted and the hexavalent chromium concentration in solution determined colourimetrically.
AN077	Hydrogen cyanide is liberated from an acidified alkali soil extract by distillation and purging with air. The hydrogen cyanide gas is then collected by passing it through a sodium hydroxide scrubbing solution. The scrubbing solution will then be analysed for cyanide by the appropriate method.
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode and is calibrated against 3 buffers purchased commercially. For soils, sediments and sludges, an extract with water (or 0.01M CaCl ₂) is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN106	Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos/cm or µS/cm @ 25°C. For soils, an extract with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Salinity can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. Reference APHA 2510 B.
AN142	Fluoride can be measured in soil as water extractable or 'total' by Ion Selective electrode. In this method the solid sample is weighed and then fused with sodium hydroxide at 600°C. The sample is carefully neutralise with hydrochloric acid and the solution of the melt is cooled and made up to volume. The final solution is then compared to synthetic Digestion Matrix standards with analysis by ISE electrode for a total fluoride result after being calculated back to original mass.
AN201	Cr ⁶⁺ is determined colourimetrically by reaction with diphenylcarbazide in acid solution. A red-violet colour of unknown composition is produced.
AN287	A buffered distillate or water sample is treated with chloramine/barbituric acid reagents and the intensity of the colour developed is proportional to the cyanide concentration by Aquakem DA .
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 Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).

AN433

VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC's are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

AN602

Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.

AN602

Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.

AN602

AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

AN602

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

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

FOOTNOTES

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

Samples analysed as received.
Solid samples expressed on a dry weight basis.

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

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

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

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

Note that in terms of units of radioactivity:

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

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

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : <http://www.sgs.com.au/~media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf>

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Project DDE-199
Order Number (Not specified)
Samples 8

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SGS Reference SE177739 R0
Date Received 10 Apr 2018
Date Reported 13 Apr 2018

COMMENTS

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

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

Asbestos analysed by Approved Identifier Ravee Sivasubramaniam.

SIGNATORIES



Akheeque Beniamen
Chemist



Dong Liang
Metals/Inorganics Team Leader



Kamrul Ahsan
Senior Chemist



Ravee Sivasubramaniam
Hygiene Team Leader

RESULTS

Fibre Identification in soil

Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE177739.001	E14	Soil	114g Clay	09 Apr 2018	No Asbestos Found	<0.01
SE177739.002	E15	Soil	74g Clay	09 Apr 2018	No Asbestos Found	<0.01
SE177739.003	E16	Soil	164g Clay	09 Apr 2018	No Asbestos Found	<0.01
SE177739.004	E17	Soil	120g Clay	09 Apr 2018	No Asbestos Found	<0.01
SE177739.005	E18	Soil	116g Clay	09 Apr 2018	No Asbestos Found	<0.01
SE177739.006	E19	Soil	183g Clay	09 Apr 2018	No Asbestos Found	<0.01
SE177739.007	E20	Soil	136g Clay	09 Apr 2018	No Asbestos Found	<0.01
SE177739.008	E21	Soil	138g Clay	09 Apr 2018	No Asbestos Found	<0.01

METHOD

METHODOLOGY SUMMARY

AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states: "Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	<p>The sample can be reported "no asbestos found at the reporting limit of 0.1 g/kg" (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if-</p> <ul style="list-style-type: none"> (a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres); (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg; and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

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

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

Sampled by the client.

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

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

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

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

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : <http://www.sgs.com.au/~media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf>

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STATEMENT OF QA/QC PERFORMANCE

SE177739 R0

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Order Number (Not specified)
Samples 9

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SGS Reference SE177739 R0
Date Received 10 Apr 2018
Date Reported 13 Apr 2018

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 and was supplied by the Client.

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	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	3 items
Matrix Spike	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	3 items

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	9 Soil
Date documentation received	10/4/2018	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	10.1°C	Sufficient sample for analysis	Yes
Turnaround time requested	Three Days		

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.

Conductivity and TDS by Calculation - Soil

Method: ME-(AU)-[ENV]JAN106

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E14	SE177739.001	LB145451	09 Apr 2018	10 Apr 2018	16 Apr 2018	12 Apr 2018	16 Apr 2018	13 Apr 2018
E15	SE177739.002	LB145451	09 Apr 2018	10 Apr 2018	16 Apr 2018	12 Apr 2018	16 Apr 2018	13 Apr 2018
E17	SE177739.004	LB145451	09 Apr 2018	10 Apr 2018	16 Apr 2018	12 Apr 2018	16 Apr 2018	13 Apr 2018
E19	SE177739.006	LB145451	09 Apr 2018	10 Apr 2018	16 Apr 2018	12 Apr 2018	16 Apr 2018	13 Apr 2018
E21	SE177739.008	LB145451	09 Apr 2018	10 Apr 2018	16 Apr 2018	12 Apr 2018	16 Apr 2018	13 Apr 2018

Fibre Identification in soil

Method: ME-(AU)-[ENV]JAN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E14	SE177739.001	LB145503	09 Apr 2018	10 Apr 2018	09 Apr 2019	12 Apr 2018	09 Apr 2019	13 Apr 2018
E15	SE177739.002	LB145503	09 Apr 2018	10 Apr 2018	09 Apr 2019	12 Apr 2018	09 Apr 2019	13 Apr 2018
E16	SE177739.003	LB145503	09 Apr 2018	10 Apr 2018	09 Apr 2019	12 Apr 2018	09 Apr 2019	13 Apr 2018
E17	SE177739.004	LB145503	09 Apr 2018	10 Apr 2018	09 Apr 2019	12 Apr 2018	09 Apr 2019	13 Apr 2018
E18	SE177739.005	LB145503	09 Apr 2018	10 Apr 2018	09 Apr 2019	12 Apr 2018	09 Apr 2019	13 Apr 2018
E19	SE177739.006	LB145503	09 Apr 2018	10 Apr 2018	09 Apr 2019	12 Apr 2018	09 Apr 2019	13 Apr 2018
E20	SE177739.007	LB145503	09 Apr 2018	10 Apr 2018	09 Apr 2019	12 Apr 2018	09 Apr 2019	13 Apr 2018
E21	SE177739.008	LB145503	09 Apr 2018	10 Apr 2018	09 Apr 2019	12 Apr 2018	09 Apr 2019	13 Apr 2018

Hexavalent Chromium in Soil UV/Vis

Method: ME-(AU)-[ENV]JAN075/AN201

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E16	SE177739.003	LB145521	09 Apr 2018	10 Apr 2018	07 May 2018	12 Apr 2018	19 Apr 2018	13 Apr 2018
E18	SE177739.005	LB145521	09 Apr 2018	10 Apr 2018	07 May 2018	12 Apr 2018	19 Apr 2018	13 Apr 2018
E20	SE177739.007	LB145521	09 Apr 2018	10 Apr 2018	07 May 2018	12 Apr 2018	19 Apr 2018	13 Apr 2018

Mercury in Soil

Method: ME-(AU)-[ENV]JAN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E14	SE177739.001	LB145450	09 Apr 2018	10 Apr 2018	07 May 2018	12 Apr 2018	07 May 2018	13 Apr 2018
E15	SE177739.002	LB145450	09 Apr 2018	10 Apr 2018	07 May 2018	12 Apr 2018	07 May 2018	13 Apr 2018
E16	SE177739.003	LB145450	09 Apr 2018	10 Apr 2018	07 May 2018	12 Apr 2018	07 May 2018	13 Apr 2018
E17	SE177739.004	LB145450	09 Apr 2018	10 Apr 2018	07 May 2018	12 Apr 2018	07 May 2018	13 Apr 2018
E18	SE177739.005	LB145450	09 Apr 2018	10 Apr 2018	07 May 2018	12 Apr 2018	07 May 2018	13 Apr 2018
E19	SE177739.006	LB145450	09 Apr 2018	10 Apr 2018	07 May 2018	12 Apr 2018	07 May 2018	13 Apr 2018
E20	SE177739.007	LB145450	09 Apr 2018	10 Apr 2018	07 May 2018	12 Apr 2018	07 May 2018	13 Apr 2018
E21	SE177739.008	LB145450	09 Apr 2018	10 Apr 2018	07 May 2018	12 Apr 2018	07 May 2018	13 Apr 2018

Moisture Content

Method: ME-(AU)-[ENV]JAN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E14	SE177739.001	LB145417	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	16 Apr 2018	13 Apr 2018
E15	SE177739.002	LB145417	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	16 Apr 2018	13 Apr 2018
E16	SE177739.003	LB145417	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	16 Apr 2018	13 Apr 2018
E17	SE177739.004	LB145417	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	16 Apr 2018	13 Apr 2018
E18	SE177739.005	LB145417	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	16 Apr 2018	13 Apr 2018
E19	SE177739.006	LB145417	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	16 Apr 2018	13 Apr 2018
E20	SE177739.007	LB145417	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	16 Apr 2018	13 Apr 2018
E21	SE177739.008	LB145417	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	16 Apr 2018	13 Apr 2018
E22	SE177739.009	LB145417	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	16 Apr 2018	13 Apr 2018

OC Pesticides in Soil

Method: ME-(AU)-[ENV]JAN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E14	SE177739.001	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E15	SE177739.002	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E16	SE177739.003	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E17	SE177739.004	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E18	SE177739.005	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E19	SE177739.006	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E20	SE177739.007	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E21	SE177739.008	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]JAN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E14	SE177739.001	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E15	SE177739.002	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E16	SE177739.003	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E17	SE177739.004	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018

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.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E18	SE177739.005	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E19	SE177739.006	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E20	SE177739.007	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E21	SE177739.008	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018

PCBs in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E14	SE177739.001	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E15	SE177739.002	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E16	SE177739.003	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E17	SE177739.004	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E18	SE177739.005	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E19	SE177739.006	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E20	SE177739.007	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E21	SE177739.008	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018

pH in soil (1:5)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E14	SE177739.001	LB145451	09 Apr 2018	10 Apr 2018	16 Apr 2018	12 Apr 2018	13 Apr 2018	12 Apr 2018
E15	SE177739.002	LB145451	09 Apr 2018	10 Apr 2018	16 Apr 2018	12 Apr 2018	13 Apr 2018	12 Apr 2018
E17	SE177739.004	LB145451	09 Apr 2018	10 Apr 2018	16 Apr 2018	12 Apr 2018	13 Apr 2018	12 Apr 2018
E19	SE177739.006	LB145451	09 Apr 2018	10 Apr 2018	16 Apr 2018	12 Apr 2018	13 Apr 2018	12 Apr 2018
E21	SE177739.008	LB145451	09 Apr 2018	10 Apr 2018	16 Apr 2018	12 Apr 2018	13 Apr 2018	12 Apr 2018

Speciated Phenols in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E14	SE177739.001	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E15	SE177739.002	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E16	SE177739.003	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E17	SE177739.004	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E18	SE177739.005	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E19	SE177739.006	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E20	SE177739.007	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E21	SE177739.008	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018

Total Cyanide in soil by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN077/AN287

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E16	SE177739.003	LB145408	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	23 Apr 2018	13 Apr 2018
E18	SE177739.005	LB145408	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	23 Apr 2018	13 Apr 2018
E20	SE177739.007	LB145408	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	23 Apr 2018	13 Apr 2018

Total Fluoride in Soil

Method: ME-(AU)-[ENV]AN142

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E16	SE177739.003	LB145438	09 Apr 2018	10 Apr 2018	07 May 2018	12 Apr 2018	07 May 2018	13 Apr 2018
E18	SE177739.005	LB145438	09 Apr 2018	10 Apr 2018	07 May 2018	12 Apr 2018	07 May 2018	13 Apr 2018
E20	SE177739.007	LB145438	09 Apr 2018	10 Apr 2018	07 May 2018	12 Apr 2018	07 May 2018	13 Apr 2018

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
E14	SE177739.001	LB145484	09 Apr 2018	10 Apr 2018	06 Oct 2018	12 Apr 2018	06 Oct 2018	13 Apr 2018
E15	SE177739.002	LB145484	09 Apr 2018	10 Apr 2018	06 Oct 2018	12 Apr 2018	06 Oct 2018	13 Apr 2018
E16	SE177739.003	LB145484	09 Apr 2018	10 Apr 2018	06 Oct 2018	12 Apr 2018	06 Oct 2018	13 Apr 2018
E17	SE177739.004	LB145484	09 Apr 2018	10 Apr 2018	06 Oct 2018	12 Apr 2018	06 Oct 2018	13 Apr 2018
E18	SE177739.005	LB145517	09 Apr 2018	10 Apr 2018	06 Oct 2018	12 Apr 2018	06 Oct 2018	13 Apr 2018
E19	SE177739.006	LB145517	09 Apr 2018	10 Apr 2018	06 Oct 2018	12 Apr 2018	06 Oct 2018	13 Apr 2018
E20	SE177739.007	LB145517	09 Apr 2018	10 Apr 2018	06 Oct 2018	12 Apr 2018	06 Oct 2018	13 Apr 2018
E21	SE177739.008	LB145517	09 Apr 2018	10 Apr 2018	06 Oct 2018	12 Apr 2018	06 Oct 2018	13 Apr 2018
E22	SE177739.009	LB145517	09 Apr 2018	10 Apr 2018	06 Oct 2018	12 Apr 2018	06 Oct 2018	13 Apr 2018

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
E14	SE177739.001	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E15	SE177739.002	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018

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
E16	SE177739.003	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E17	SE177739.004	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E18	SE177739.005	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E19	SE177739.006	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E20	SE177739.007	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E21	SE177739.008	LB145393	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E14	SE177739.001	LB145412	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E15	SE177739.002	LB145412	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E16	SE177739.003	LB145412	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E17	SE177739.004	LB145412	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E18	SE177739.005	LB145412	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E19	SE177739.006	LB145412	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E20	SE177739.007	LB145412	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E21	SE177739.008	LB145412	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018

Volatile Petroleum Hydrocarbons in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E14	SE177739.001	LB145412	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E15	SE177739.002	LB145412	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E16	SE177739.003	LB145412	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E17	SE177739.004	LB145412	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E18	SE177739.005	LB145412	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E19	SE177739.006	LB145412	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E20	SE177739.007	LB145412	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018
E21	SE177739.008	LB145412	09 Apr 2018	10 Apr 2018	23 Apr 2018	11 Apr 2018	21 May 2018	13 Apr 2018

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)	E16	SE177739.003	%	60 - 130%	109
	E18	SE177739.005	%	60 - 130%	121
	E20	SE177739.007	%	60 - 130%	112

PAH (Polynuclear Aromatic Hydrocarbons) In Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	E14	SE177739.001	%	70 - 130%	98
	E15	SE177739.002	%	70 - 130%	96
	E16	SE177739.003	%	70 - 130%	100
	E17	SE177739.004	%	70 - 130%	108
	E18	SE177739.005	%	70 - 130%	102
	E19	SE177739.006	%	70 - 130%	102
	E20	SE177739.007	%	70 - 130%	102
	E21	SE177739.008	%	70 - 130%	100
d14-p-terphenyl (Surrogate)	E14	SE177739.001	%	70 - 130%	80
	E15	SE177739.002	%	70 - 130%	74
	E16	SE177739.003	%	70 - 130%	80
	E17	SE177739.004	%	70 - 130%	86
	E18	SE177739.005	%	70 - 130%	78
	E19	SE177739.006	%	70 - 130%	78
	E20	SE177739.007	%	70 - 130%	78
	E21	SE177739.008	%	70 - 130%	76
d5-nitrobenzene (Surrogate)	E14	SE177739.001	%	70 - 130%	72
	E15	SE177739.002	%	70 - 130%	70
	E16	SE177739.003	%	70 - 130%	74
	E17	SE177739.004	%	70 - 130%	80
	E18	SE177739.005	%	70 - 130%	74
	E19	SE177739.006	%	70 - 130%	76
	E20	SE177739.007	%	70 - 130%	76
	E21	SE177739.008	%	70 - 130%	74

PCBs In Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	E16	SE177739.003	%	60 - 130%	109
	E18	SE177739.005	%	60 - 130%	121
	E20	SE177739.007	%	60 - 130%	112

Speciated Phenols In Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2,4,6-Tribromophenol (Surrogate)	E16	SE177739.003	%	70 - 130%	106
	E18	SE177739.005	%	70 - 130%	89
	E20	SE177739.007	%	70 - 130%	93
d5-phenol (Surrogate)	E16	SE177739.003	%	50 - 130%	119
	E18	SE177739.005	%	50 - 130%	103
	E20	SE177739.007	%	50 - 130%	99

VOC's In Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	E14	SE177739.001	%	60 - 130%	72
	E15	SE177739.002	%	60 - 130%	73
	E16	SE177739.003	%	60 - 130%	86
	E17	SE177739.004	%	60 - 130%	92
	E18	SE177739.005	%	60 - 130%	84
	E19	SE177739.006	%	60 - 130%	74
	E20	SE177739.007	%	60 - 130%	86
	E21	SE177739.008	%	60 - 130%	72
d4-1,2-dichloroethane (Surrogate)	E14	SE177739.001	%	60 - 130%	87
	E15	SE177739.002	%	60 - 130%	84
	E16	SE177739.003	%	60 - 130%	82
	E17	SE177739.004	%	60 - 130%	84
	E18	SE177739.005	%	60 - 130%	79
	E19	SE177739.006	%	60 - 130%	86
	E20	SE177739.007	%	60 - 130%	84

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

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

VOC's in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	E21	SE177739.008	%	60 - 130%	86
	E14	SE177739.001	%	60 - 130%	81
	E15	SE177739.002	%	60 - 130%	78
	E16	SE177739.003	%	60 - 130%	92
	E17	SE177739.004	%	60 - 130%	78
	E18	SE177739.005	%	60 - 130%	92
	E19	SE177739.006	%	60 - 130%	80
	E20	SE177739.007	%	60 - 130%	92
d8-toluene (Surrogate)	E21	SE177739.008	%	60 - 130%	78
	E14	SE177739.001	%	60 - 130%	89
	E15	SE177739.002	%	60 - 130%	82
	E16	SE177739.003	%	60 - 130%	71
	E17	SE177739.004	%	60 - 130%	81
	E18	SE177739.005	%	60 - 130%	76
	E19	SE177739.006	%	60 - 130%	85
	E20	SE177739.007	%	60 - 130%	76
Dibromofluoromethane (Surrogate)	E21	SE177739.008	%	60 - 130%	84

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	E14	SE177739.001	%	60 - 130%	72
	E15	SE177739.002	%	60 - 130%	73
	E16	SE177739.003	%	60 - 130%	75
	E17	SE177739.004	%	60 - 130%	92
	E18	SE177739.005	%	60 - 130%	74
	E19	SE177739.006	%	60 - 130%	74
	E20	SE177739.007	%	60 - 130%	75
	E21	SE177739.008	%	60 - 130%	72
d4-1,2-dichloroethane (Surrogate)	E14	SE177739.001	%	60 - 130%	87
	E15	SE177739.002	%	60 - 130%	84
	E16	SE177739.003	%	60 - 130%	82
	E17	SE177739.004	%	60 - 130%	84
	E18	SE177739.005	%	60 - 130%	86
	E19	SE177739.006	%	60 - 130%	86
	E20	SE177739.007	%	60 - 130%	84
	E21	SE177739.008	%	60 - 130%	86
d8-toluene (Surrogate)	E14	SE177739.001	%	60 - 130%	81
	E15	SE177739.002	%	60 - 130%	78
	E16	SE177739.003	%	60 - 130%	84
	E17	SE177739.004	%	60 - 130%	78
	E18	SE177739.005	%	60 - 130%	73
	E19	SE177739.006	%	60 - 130%	80
	E20	SE177739.007	%	60 - 130%	84
	E21	SE177739.008	%	60 - 130%	78
Dibromofluoromethane (Surrogate)	E14	SE177739.001	%	60 - 130%	89
	E15	SE177739.002	%	60 - 130%	82
	E16	SE177739.003	%	60 - 130%	84
	E17	SE177739.004	%	60 - 130%	81
	E18	SE177739.005	%	60 - 130%	78
	E19	SE177739.006	%	60 - 130%	85
	E20	SE177739.007	%	60 - 130%	83
	E21	SE177739.008	%	60 - 130%	84

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

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

Conductivity and TDS by Calculation - Soil

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

Sample Number	Parameter	Units	LOR	Result
LB145451.001	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	0

Hexavalent Chromium in Soil UV/Vis

Method: ME-(AU)-[ENV]AN075/AN201

Sample Number	Parameter	Units	LOR	Result
LB145521.001	Hexavalent Chromium, Cr6+	mg/kg	0.5	0

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB145450.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB145393.001	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
	Alpha BHC	mg/kg	0.1	<0.1
	Lindane	mg/kg	0.1	<0.1
	Heptachlor	mg/kg	0.1	<0.1
	Aldrin	mg/kg	0.1	<0.1
	Beta BHC	mg/kg	0.1	<0.1
	Delta BHC	mg/kg	0.1	<0.1
	Heptachlor epoxide	mg/kg	0.1	<0.1
	Alpha Endosulfan	mg/kg	0.2	<0.2
	Gamma Chlordane	mg/kg	0.1	<0.1
	Alpha Chlordane	mg/kg	0.1	<0.1
	p,p'-DDE	mg/kg	0.1	<0.1
	Dieldrin	mg/kg	0.2	<0.2
	Endrin	mg/kg	0.2	<0.2
	Beta Endosulfan	mg/kg	0.2	<0.2
	p,p'-DDD	mg/kg	0.1	<0.1
	p,p'-DDT	mg/kg	0.1	<0.1
	Endosulfan sulphate	mg/kg	0.1	<0.1
	Endrin Aldehyde	mg/kg	0.1	<0.1
	Methoxychlor	mg/kg	0.1	<0.1
	Endrin Ketone	mg/kg	0.1	<0.1
	Isodrin	mg/kg	0.1	<0.1
	Mirex	mg/kg	0.1	<0.1
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	97

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB145393.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1
	Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
	Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
	Benzo(ghi)perylene	mg/kg	0.1	<0.1
	Total PAH (18)	mg/kg	0.8	<0.8
Surrogates	d5-nitrobenzene (Surrogate)	%	-	76

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
LB145393.001	Surrogates	2-fluorobiphenyl (Surrogate)	%	-
		d14-p-terphenyl (Surrogate)	%	-

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB145393.001	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 (Arochors)	mg/kg	1	<1
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	97

Speciated Phenols in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB145393.001	Phenol	mg/kg	0.5	<0.5
	2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5
	3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1
	2-chlorophenol	mg/kg	0.5	<0.5
	2,4-dimethylphenol	mg/kg	0.5	<0.5
	2,6-dichlorophenol	mg/kg	0.5	<0.5
	2,4-dichlorophenol	mg/kg	0.5	<0.5
	2,4,6-trichlorophenol	mg/kg	0.5	<0.5
	2-nitrophenol	mg/kg	0.5	<0.5
	4-nitrophenol	mg/kg	1	<1
	2,4,5-trichlorophenol	mg/kg	0.5	<0.5
	2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1
	Pentachlorophenol	mg/kg	0.5	<0.5
	2,4-dinitrophenol	mg/kg	2	<2
	4-chloro-3-methylphenol	mg/kg	2	<2
Surrogates	2,4,6-Tribromophenol (Surrogate)	%	-	117
	d5-phenol (Surrogate)	%	-	117

Total Cyanide in soil by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN077/AN287

Sample Number	Parameter	Units	LOR	Result
LB145408.001	Total Cyanide	mg/kg	0.5	<0.5

Total Fluoride in Soil

Method: ME-(AU)-[ENV]AN142

Sample Number	Parameter	Units	LOR	Result
LB145438.001	Total Fluoride	mg/kg	50	0

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

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

Sample Number	Parameter	Units	LOR	Result
LB145484.001	Silver, Ag	mg/kg	1	<1
	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Molybdenum, Mo	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Selenium, Se	mg/kg	3	<3
	Tin, Sn	mg/kg	3	<3
LB145517.001	Zinc, Zn	mg/kg	0.5	<0.5
	Silver, Ag	mg/kg	1	<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.

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES (continued)

Method: ME-(AU)-[ENV]AN040/AN30

Sample Number	Parameter	Units	LOR	Result
LB145517.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Molybdenum, Mo	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Selenium, Se	mg/kg	3	<3
	Tin, Sn	mg/kg	3	<3
	Zinc, Zn	mg/kg	0.5	<0.5

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB145393.001	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	
LB145412.001	Fumigants	2,2-dichloropropane	mg/kg	0.1	<0.1	
		1,2-dichloropropane	mg/kg	0.1	<0.1	
		cis-1,3-dichloropropene	mg/kg	0.1	<0.1	
		trans-1,3-dichloropropene	mg/kg	0.1	<0.1	
	Halogenated Aliphatics	Dichlorodifluoromethane (CFC-12)	mg/kg	1	<1	
		Chloromethane	mg/kg	1	<1	
		Vinyl chloride (Chloroethene)	mg/kg	0.1	<0.1	
		Chloroethane	mg/kg	1	<1	
		Trichlorofluoromethane	mg/kg	1	<1	
		1,1-dichloroethene	mg/kg	0.1	<0.1	
		Dichloromethane (Methylene chloride)	mg/kg	0.5	<0.5	
		Allyl chloride	mg/kg	0.1	<0.1	
		trans-1,2-dichloroethene	mg/kg	0.1	<0.1	
		1,1-dichloroethane	mg/kg	0.1	<0.1	
		cis-1,2-dichloroethene	mg/kg	0.1	<0.1	
		Bromochloromethane	mg/kg	0.1	<0.1	
		1,2-dichloroethane	mg/kg	0.1	<0.1	
		1,1,1-trichloroethane	mg/kg	0.1	<0.1	
		1,1-dichloropropene	mg/kg	0.1	<0.1	
		Carbon tetrachloride	mg/kg	0.1	<0.1	
		Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	<0.1	
		1,1,2-trichloroethane	mg/kg	0.1	<0.1	
		1,3-dichloropropane	mg/kg	0.1	<0.1	
		Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	<0.1	
		1,1,1,2-tetrachloroethane	mg/kg	0.1	<0.1	
		cis-1,4-dichloro-2-butene	mg/kg	1	<1	
		1,1,2,2-tetrachloroethane	mg/kg	0.1	<0.1	
		1,2,3-trichloropropane	mg/kg	0.1	<0.1	
		trans-1,4-dichloro-2-butene	mg/kg	1	<1	
		1,2-dibromo-3-chloropropane	mg/kg	0.1	<0.1	
		Hexachlorobutadiene	mg/kg	0.1	<0.1	
		Halogenated Aromatics	Chlorobenzene	mg/kg	0.1	<0.1
			2-chlorotoluene	mg/kg	0.1	<0.1
			4-chlorotoluene	mg/kg	0.1	<0.1
			1,3-dichlorobenzene	mg/kg	0.1	<0.1
			1,4-dichlorobenzene	mg/kg	0.1	<0.1
	1,2-dichlorobenzene		mg/kg	0.1	<0.1	
	1,2,4-trichlorobenzene		mg/kg	0.1	<0.1	
	1,2,3-trichlorobenzene		mg/kg	0.1	<0.1	
	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1	

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

VOC's in Soil (continued)

Method: ME-(AU)-ENVJAN433

Sample Number		Parameter	Units	LOR	Result
LB145412.001	Monocyclic Aromatic Hydrocarbons	Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
		Styrene (Vinyl benzene)	mg/kg	0.1	<0.1
		Isopropylbenzene (Cumene)	mg/kg	0.1	<0.1
		n-propylbenzene	mg/kg	0.1	<0.1
		1,3,5-trimethylbenzene	mg/kg	0.1	<0.1
		tert-butylbenzene	mg/kg	0.1	<0.1
		1,2,4-trimethylbenzene	mg/kg	0.1	<0.1
		sec-butylbenzene	mg/kg	0.1	<0.1
		p-isopropyltoluene	mg/kg	0.1	<0.1
		n-butylbenzene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	80
		d4-1,2-dichloroethane (Surrogate)	%	-	85
		d8-toluene (Surrogate)	%	-	89
		Bromofluorobenzene (Surrogate)	%	-	82
	Totals	Total BTEX	mg/kg	0.6	<0.6
		Total MAH*	mg/kg	1.8	<1.8
		Total Chlorinated VOC*	mg/kg	3	<3.0
	Trihalomethanes	Chloroform	mg/kg	0.1	<0.1
		Bromodichloromethane	mg/kg	0.1	<0.1
		Chlorodibromomethane	mg/kg	0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-ENVJAN433

Sample Number		Parameter	Units	LOR	Result
LB145412.001	Surrogates	TRH C6-C9	mg/kg	20	<20
		Dibromofluoromethane (Surrogate)	%	-	80
		d4-1,2-dichloroethane (Surrogate)	%	-	85
		d8-toluene (Surrogate)	%	-	85

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

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

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

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

Conductivity and TDS by Calculation - Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177693.003	LB145451.014	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	18.279059180937	0.435508345	34	3
SE177739.006	LB145451.025	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	70	70.4424293352	33	0
SE177739.008	LB145451.028	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	51	15.5087397706	34	11

Hexavalent Chromium in Soil UV/Vis

Method: ME-(AU)-[ENV]AN075/AN201

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177739.007	LB145521.006	Hexavalent Chromium, Cr6+	mg/kg	0.5	<0.5	0.4129912491	151	0

Mercury in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177589.003	LB145450.024	Mercury	mg/kg	0.05	0.0156319641	0.0123299849	200	0
SE177739.002	LB145450.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177740.001	LB145417.011	% Moisture	%w/w	0.5	5.76036866356	1.224489795	47	6
SE177742.006	LB145417.022	% Moisture	%w/w	0.5	4.14673046253	4.482758620	56	18
SE177782.008	LB145417.033	% Moisture	%w/w	0.5	12.75917085393	3.7048192771	38	7
SE177783.008	LB145417.044	% Moisture	%w/w	0.5	11.9096509240	1.4470842332	39	4
SE177783.010	LB145417.047	% Moisture	%w/w	0.5	10.4	10.8348134991	39	4

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177740.003	LB145393.028	Naphthalene	mg/kg	0.1	0	0	200	0
		2-methylnaphthalene	mg/kg	0.1	0	0	200	0
		1-methylnaphthalene	mg/kg	0.1	0	0	200	0
		Acenaphthylene	mg/kg	0.1	0	0	200	0
		Acenaphthene	mg/kg	0.1	0	0	200	0
		Fluorene	mg/kg	0.1	0	0	200	0
		Phenanthrene	mg/kg	0.1	0	0	200	0
		Anthracene	mg/kg	0.1	0	0	200	0
		Fluoranthene	mg/kg	0.1	0	0	200	0
		Pyrene	mg/kg	0.1	0	0	200	0
		Benzo(a)anthracene	mg/kg	0.1	0	0	200	0
		Chrysene	mg/kg	0.1	0	0	200	0
		Benzo(b,j)fluoranthene	mg/kg	0.1	0	0	200	0
		Benzo(k)fluoranthene	mg/kg	0.1	0	0	200	0
		Benzo(a)pyrene	mg/kg	0.1	0	0	200	0
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0	0	200	0
		Dibenzo(ah)anthracene	mg/kg	0.1	0	0	200	0
		Benzo(ghi)perylene	mg/kg	0.1	0	0	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0	0	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.242	0.242	134	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.121	0.121	175	0
		Total PAH (18)	mg/kg	0.8	0	0	200	0
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.37	0.41	30	10
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.52	0.56	30	7
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.43	0.49	30	13
SE177742.005	LB145393.029	Naphthalene	mg/kg	0.1	0	0	200	0
		2-methylnaphthalene	mg/kg	0.1	0	0	200	0
		1-methylnaphthalene	mg/kg	0.1	0	0	200	0
		Acenaphthylene	mg/kg	0.1	0	0	200	0
		Acenaphthene	mg/kg	0.1	0	0	200	0
		Fluorene	mg/kg	0.1	0	0	200	0
		Phenanthrene	mg/kg	0.1	0	0	200	0
		Anthracene	mg/kg	0.1	0	0	200	0
		Fluoranthene	mg/kg	0.1	0	0	200	0
		Pyrene	mg/kg	0.1	0	0	200	0
		Benzo(a)anthracene	mg/kg	0.1	0	0	200	0

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

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

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177742.005	LB145393.029	Chrysene	mg/kg	0.1	0	0	200	0
		Benzo(b&j)fluoranthene	mg/kg	0.1	0	0	200	0
		Benzo(k)fluoranthene	mg/kg	0.1	0	0	200	0
		Benzo(a)pyrene	mg/kg	0.1	0	0	200	0
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0	0	200	0
		Dibenzo(ah)anthracene	mg/kg	0.1	0	0	200	0
		Benzo(ghi)perylene	mg/kg	0.1	0	0	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0	0	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.242	0.242	134	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.121	0.121	175	0
		Total PAH (18)	mg/kg	0.8	0	0	200	0
		Surrogates						
		d5-nitrobenzene (Surrogate)	mg/kg	-	0.37	0.42	30	13
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.49	0.54	30	10
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.49	0.51	30	4

pH in soil (1:5)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177693.003	LB145451.014	pH	pH Units	0.1	6.203	6.101	32	2
SE177739.006	LB145451.025	pH	pH Units	0.1	6.5	6.5	32	0
SE177739.008	LB145451.028	pH	pH Units	0.1	5.8	5.8	32	1

Speciated Phenols in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177739.007	LB145393.026	Phenol	mg/kg	0.5	<0.5	0	200	0
		2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	0	200	0
		3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	0	200	0
		Total Cresol	mg/kg	1.5	<1.5	0	200	0
		2-chlorophenol	mg/kg	0.5	<0.5	0	200	0
		2,4-dimethylphenol	mg/kg	0.5	<0.5	0	200	0
		2,6-dichlorophenol	mg/kg	0.5	<0.5	0	200	0
		2,4-dichlorophenol	mg/kg	0.5	<0.5	0	200	0
		2,4,6-trichlorophenol	mg/kg	0.5	<0.5	0	200	0
		2-nitrophenol	mg/kg	0.5	<0.5	0	200	0
		4-nitrophenol	mg/kg	1	<1	0	200	0
		2,4,5-trichlorophenol	mg/kg	0.5	<0.5	0	200	0
		2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	0	200	0
		Pentachlorophenol	mg/kg	0.5	<0.5	0	200	0
		2,4-dinitrophenol	mg/kg	2	<2	0	200	0
		4-chloro-3-methylphenol	mg/kg	2	<2	0	200	0
		Surrogates						
		2,4,6-Tribromophenol (Surrogate)	mg/kg	-	4.6	4.94	30	6
		d5-phenol (Surrogate)	mg/kg	-	2.0	2.12	30	7

Total Cyanide in soil by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN077/AN287

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177739.003	LB145408.004	Total Cyanide	mg/kg	0.5	<0.5	<0.5	200	0

Total Fluoride in Soil

Method: ME-(AU)-[ENV]AN142

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177739.007	LB145438.006	Total Fluoride	mg/kg	50	250	66.980217476	49	5

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 %
SE177589.005	LB145517.014	Arsenic, As	mg/kg	3	2.91888256333.5971209677		61	21
		Cadmium, Cd	mg/kg	0.3	0.68123834950.7839879032		71	14
		Chromium, Cr	mg/kg	0.3	28.68659882102.8214229836		32	13
		Copper, Cu	mg/kg	0.5	05.91515945396.2921612903		30	10
		Nickel, Ni	mg/kg	0.5	10.82522545211.5246221774		34	6
		Lead, Pb	mg/kg	1	49.62380976387.373108870		31	22

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

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

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

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

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES (continued)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177589.005	LB145517.014	Zinc, Zn	mg/kg	0.5	21.47488538471.610266129		31	14
SE177589.007	LB145517.017	Arsenic, As	mg/kg	3	1.29220864531.5925138461		99	21
		Cadmium, Cd	mg/kg	0.3	0.07817632370.0045630769		200	0
		Chromium, Cr	mg/kg	0.3	20.01313887796.5913138461		32	59 @
		Copper, Cu	mg/kg	0.5	14.70634607822.3316984615		33	41 @
		Nickel, Ni	mg/kg	0.5	6.28629615037.3009230769		37	15
		Lead, Pb	mg/kg	1	7.81303376697.9762584615		43	2
		Zinc, Zn	mg/kg	0.5	10.13533044220.2053046153		43	66 @
SE177639.009	LB145484.014	Arsenic, As	mg/kg	3	1.40191674150.2690307692		150	33
		Cadmium, Cd	mg/kg	0.3	0.08140161720.0649384615		200	0
		Chromium, Cr	mg/kg	0.3	0.89994010181.2570230769		76	33
		Copper, Cu	mg/kg	0.5	2.41491464511.5631615384		55	43
		Nickel, Ni	mg/kg	0.5	0.28038334830.3015		200	0
		Lead, Pb	mg/kg	1	6.40811620248.9754230769		43	33
		Zinc, Zn	mg/kg	0.5	53.86073674752.1363076923		34	3
SE177739.004	LB145484.024	Arsenic, As	mg/kg	3	4	6	50	21
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	10	11	35	6
		Copper, Cu	mg/kg	0.5	31	36	32	14
		Nickel, Ni	mg/kg	0.5	12	12	34	1
		Lead, Pb	mg/kg	1	18	15	36	17
		Zinc, Zn	mg/kg	0.5	44	53	34	19

TRH (Total Recoverable Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177740.003	LB145393.029	TRH C10-C14	mg/kg	20	0	0	200	0
		TRH C15-C28	mg/kg	45	58	83	94	35
		TRH C29-C36	mg/kg	45	0	0	200	0
		TRH C37-C40	mg/kg	100	0	0	200	0
		TRH C10-C36 Total	mg/kg	110	58	83	186	0
		TRH C10-C40 Total (F bands)	mg/kg	210	0	0	200	0
		TRH F Bands						
		TRH >C10-C16	mg/kg	25	0	0	200	0
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	0	0	200	0
		TRH >C16-C34 (F3)	mg/kg	90	0	0	200	0
		TRH >C34-C40 (F4)	mg/kg	120	0	0	200	0
SE177742.005	LB145393.026	TRH C10-C14	mg/kg	20	0	0	200	0
		TRH C15-C28	mg/kg	45	100	97	76	3
		TRH C29-C36	mg/kg	45	0	0	200	0
		TRH C37-C40	mg/kg	100	0	0	200	0
		TRH C10-C36 Total	mg/kg	110	100	97	142	0
		TRH C10-C40 Total (F bands)	mg/kg	210	34	34	200	0
		TRH F Bands						
		TRH >C10-C16	mg/kg	25	34	34	104	0
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	34	34	104	0
		TRH >C16-C34 (F3)	mg/kg	90	84	79	140	0
		TRH >C34-C40 (F4)	mg/kg	120	0	0	200	0

VOC's in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE177656.003	LB145412.024	Monocyclic	Benzene	mg/kg	0.1	0.03	0.03	200	0	
			Aromatic	Toluene	mg/kg	0.1	0	0	200	0
			Ethylbenzene	mg/kg	0.1	0	0	200	0	
			m/p-xylene	mg/kg	0.2	0	0	200	0	
			o-xylene	mg/kg	0.1	0	0	200	0	
			Polycyclic	Naphthalene	mg/kg	0.1	0.01	0.01	200	0
			Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.46	4.85	50	8
		d4-1,2-dichloroethane (Surrogate)		mg/kg	-	3.97	4.28	50	8	
		d8-toluene (Surrogate)		mg/kg	-	3.68	3.97	50	8	
		Bromofluorobenzene (Surrogate)		mg/kg	-	3.99	4.82	50	19	
		Totals	Total Xylenes	mg/kg	0.3	0	0	200	0	
			Total BTEX	mg/kg	0.6	0.03	0.03	200	0	
SE177739.005	LB145412.014	Fumigants	2,2-dichloropropane	mg/kg	0.1	<0.1	<0.1	200	0	
			1,2-dichloropropane	mg/kg	0.1	<0.1	<0.1	200	0	

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

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

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

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

VOC's in Soil (continued)

Method: ME-(AU)-ENVJAN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE177739.005	LB145412.014	Fumigants	cis-1,3-dichloropropene	mg/kg	0.1	<0.1	<0.1	200	0	
			trans-1,3-dichloropropene	mg/kg	0.1	<0.1	<0.1	200	0	
		Halogenated	Dichlorodifluoromethane (CFC-12)	mg/kg	1	<1	<1	200	0	
			Chloromethane	mg/kg	1	<1	<1	168	0	
		Aliphatics	Chloroethane	mg/kg	1	<1	<1	200	0	
			Trichlorofluoromethane	mg/kg	1	<1	<1	200	0	
			1,1-dichloroethene	mg/kg	0.1	<0.1	<0.1	200	0	
			Dichloromethane (Methylene chloride)	mg/kg	0.5	<0.5	<0.5	200	0	
			Allyl chloride	mg/kg	0.1	<0.1	<0.1	200	0	
			trans-1,2-dichloroethene	mg/kg	0.1	<0.1	<0.1	200	0	
			1,1-dichloroethane	mg/kg	0.1	<0.1	<0.1	200	0	
			cis-1,2-dichloroethene	mg/kg	0.1	<0.1	<0.1	200	0	
			Bromochloromethane	mg/kg	0.1	<0.1	<0.1	200	0	
			1,2-dichloroethane	mg/kg	0.1	<0.1	<0.1	200	0	
			1,1,1-trichloroethane	mg/kg	0.1	<0.1	<0.1	200	0	
			1,1-dichloropropene	mg/kg	0.1	<0.1	<0.1	200	0	
			Carbon tetrachloride	mg/kg	0.1	<0.1	<0.1	200	0	
			Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	<0.1	<0.1	200	0	
			1,1,2-trichloroethane	mg/kg	0.1	<0.1	<0.1	173	0	
			1,3-dichloropropane	mg/kg	0.1	<0.1	<0.1	200	0	
			Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	<0.1	<0.1	200	0	
			1,1,1,2-tetrachloroethane	mg/kg	0.1	<0.1	<0.1	200	0	
			cis-1,4-dichloro-2-butene	mg/kg	1	<1	<1	200	0	
			1,1,2,2-tetrachloroethane	mg/kg	0.1	<0.1	<0.1	200	0	
			1,2,3-trichloropropane	mg/kg	0.1	<0.1	<0.1	200	0	
			Hexachlorobutadiene	mg/kg	0.1	<0.1	<0.1	200	0	
			Halogenated	Chlorobenzene	mg/kg	0.1	<0.1	<0.1	200	0
				Aromatics	2-chlorotoluene	mg/kg	0.1	<0.1	<0.1	200
			4-chlorotoluene		mg/kg	0.1	<0.1	<0.1	200	0
			1,3-dichlorobenzene		mg/kg	0.1	<0.1	<0.1	200	0
			1,4-dichlorobenzene		mg/kg	0.1	<0.1	<0.1	200	0
			1,2-dichlorobenzene		mg/kg	0.1	<0.1	<0.1	200	0
			1,2,4-trichlorobenzene		mg/kg	0.1	<0.1	<0.1	200	0
			1,2,3-trichlorobenzene		mg/kg	0.1	<0.1	<0.1	200	0
			Monocyclic Aromatic		Benzene	mg/kg	0.1	<0.1	<0.1	200
				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	
		Styrene (Vinyl benzene)		mg/kg	0.1	<0.1	<0.1	200	0	
		Isopropylbenzene (Cumene)		mg/kg	0.1	<0.1	<0.1	200	0	
		n-propylbenzene		mg/kg	0.1	<0.1	<0.1	200	0	
		1,3,5-trimethylbenzene		mg/kg	0.1	<0.1	<0.1	200	0	
		tert-butylbenzene		mg/kg	0.1	<0.1	<0.1	200	0	
		1,2,4-trimethylbenzene		mg/kg	0.1	<0.1	<0.1	200	0	
		sec-butylbenzene		mg/kg	0.1	<0.1	<0.1	200	0	
		p-isopropyltoluene		mg/kg	0.1	<0.1	<0.1	200	0	
		n-butylbenzene		mg/kg	0.1	<0.1	<0.1	200	0	
		Polycyclic		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates		Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	3.6	50	6
				d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.9	3.8	50	3
				d8-toluene (Surrogate)	mg/kg	-	4.6	4.7	50	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	4.2	50	1	
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0	
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0	
			Total MAH*	mg/kg	1.8	<1.8	<1.8	200	0	
		Trihalomethan es	Chloroform	mg/kg	0.1	<0.1	<0.1	200	0	
			Bromodichloromethane	mg/kg	0.1	<0.1	<0.1	200	0	
			Chlorodibromomethane	mg/kg	0.1	<0.1	<0.1	200	0	

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

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

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

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

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-ENVJAN433

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177656.003	LB145412.024	TRH C6-C10	mg/kg	25	0	0	200	0
		TRH C6-C9	mg/kg	20	0	0	200	0
		Surrogates						
		Dibromofluoromethane (Surrogate)	mg/kg	-	4.46	4.85	30	8
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.97	4.28	30	8
		d8-toluene (Surrogate)	mg/kg	-	3.68	3.97	30	8
		Bromofluorobenzene (Surrogate)	mg/kg	-	3.99	4.82	30	19
		VPF F Bands						
		Benzene (F0)	mg/kg	0.1	0.03	0.03	200	0
SE177739.005	LB145412.014	TRH C6-C10 minus BTEX (F1)	mg/kg	25	-0.03	-0.03	200	0
		TRH C6-C10	mg/kg	25	<25	<25	200	0
		TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates						
		Dibromofluoromethane (Surrogate)	mg/kg	-	3.9	3.9	30	1
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	4.0	30	8
		d8-toluene (Surrogate)	mg/kg	-	3.7	3.7	30	0
		Bromofluorobenzene (Surrogate)	mg/kg	-	3.7	3.7	30	1
		VPF F Bands						
		Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
		TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

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

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

Conductivity and TDS by Calculation - Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145451.002	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	NA	303	85 - 115	97

Hexavalent Chromium in Soil UV/Vis

Method: ME-(AU)-[ENV]AN075/AN201

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145521.002	Hexavalent Chromium, Cr6+	mg/kg	0.5	NA	20	70 - 130	102

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145450.002	Mercury	mg/kg	0.05	0.21	0.2	70 - 130	105

OC Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145393.002	Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	104
	Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	110
	Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	104
	Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	106
	Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	96
	p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	77
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.15	40 - 130	95

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145393.002	Naphthalene	mg/kg	0.1	4.6	4	60 - 140	115
	Acenaphthylene	mg/kg	0.1	4.5	4	60 - 140	113
	Acenaphthene	mg/kg	0.1	4.1	4	60 - 140	102
	Phenanthrene	mg/kg	0.1	4.5	4	60 - 140	113
	Anthracene	mg/kg	0.1	4.3	4	60 - 140	108
	Fluoranthene	mg/kg	0.1	4.3	4	60 - 140	107
	Pyrene	mg/kg	0.1	4.3	4	60 - 140	107
	Benzo(a)pyrene	mg/kg	0.1	5.4	4	60 - 140	136
Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	72
	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	100
	d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	74

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145393.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	105

pH in soil (1:5)

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145451.003	pH	pH Units	0.1	7.5	7.415	98 - 102	101

Speciated Phenols in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145393.002	Phenol	mg/kg	0.5	1.1	1	70 - 130	107
	2,4-dichlorophenol	mg/kg	0.5	1.2	1	70 - 130	123
	2,4,6-trichlorophenol	mg/kg	0.5	1.1	1	70 - 130	106
	Pentachlorophenol	mg/kg	0.5	0.8	1	70 - 130	79
	2,4,6-Tribromophenol (Surrogate)	mg/kg	-	5.9	5	40 - 130	119
Surrogates	d5-phenol (Surrogate)	mg/kg	-	2.4	2	40 - 130	120

Total Cyanide in soil by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN077/AN287

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

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

Total Cyanide in soil by Discrete Analyser (Aquakem) (continued)
Method: ME-(AU)-[ENV]AN077/AN287

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145408.002	Total Cyanide	mg/kg	0.5	<0.5	0.25	70 - 130	92

Total Fluoride in Soil
Method: ME-(AU)-[ENV]AN142

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145438.002	Total Fluoride	mg/kg	50	NA	200	70 - 130	97

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 %
LB145484.002	Silver, Ag	mg/kg	1	2	2.1	72 - 128	98
	Arsenic, As	mg/kg	3	360	336.32	79 - 120	108
	Cadmium, Cd	mg/kg	0.3	460	416.6	69 - 131	109
	Chromium, Cr	mg/kg	0.3	35	35.2	80 - 120	100
	Copper, Cu	mg/kg	0.5	400	370.46	80 - 120	107
	Molybdenum, Mo	mg/kg	1	480	417	80 - 120	116
	Nickel, Ni	mg/kg	0.5	210	210.88	79 - 120	101
	Lead, Pb	mg/kg	1	110	107.87	79 - 120	99
	Selenium, Se	mg/kg	3	84	83.3	80 - 120	101
	Tin, Sn	mg/kg	3	460	417	80 - 120	110
LB145517.002	Zinc, Zn	mg/kg	0.5	310	301.27	80 - 121	104
	Silver, Ag	mg/kg	1	3	2.1	72 - 128	127
	Arsenic, As	mg/kg	3	350	336.32	79 - 120	105
	Cadmium, Cd	mg/kg	0.3	460	416.6	69 - 131	109
	Chromium, Cr	mg/kg	0.3	40	35.2	80 - 120	114
	Copper, Cu	mg/kg	0.5	390	370.46	80 - 120	106
	Molybdenum, Mo	mg/kg	1	480	417	80 - 120	115
	Nickel, Ni	mg/kg	0.5	210	210.88	79 - 120	100
	Lead, Pb	mg/kg	1	110	107.87	79 - 120	101
	Selenium, Se	mg/kg	3	86	83.3	80 - 120	104
	Tin, Sn	mg/kg	3	460	417	80 - 120	110
	Zinc, Zn	mg/kg	0.5	310	301.27	80 - 121	104

TRH (Total Recoverable Hydrocarbons) in Soil
Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145393.002	TRH C10-C14	mg/kg	20	30	40	60 - 140	75
	TRH C15-C28	mg/kg	45	<45	40	60 - 140	78
	TRH C29-C36	mg/kg	45	<45	40	60 - 140	75
	TRH F Bands	mg/kg	25	30	40	60 - 140	75
	TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	78
	TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	90

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145412.002	Halogenated	1,1-dichloroethene	mg/kg	0.1	1.8	2.56	60 - 140	70
	Aliphatics	1,2-dichloroethane	mg/kg	0.1	2.5	2.56	60 - 140	96
		Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	3.0	2.56	60 - 140	116
	Halogenated	Chlorobenzene	mg/kg	0.1	3.2	2.56	60 - 140	125
	Monocyclic	Benzene	mg/kg	0.1	2.6	2.9	60 - 140	91
	Aromatic	Toluene	mg/kg	0.1	3.2	2.9	60 - 140	110
		Ethylbenzene	mg/kg	0.1	3.2	2.9	60 - 140	110
		m/p-xylene	mg/kg	0.2	6.9	5.8	60 - 140	119
		o-xylene	mg/kg	0.1	3.2	2.9	60 - 140	111
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.9	5	60 - 140	78
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.9	5	60 - 140	77
		d8-toluene (Surrogate)	mg/kg	-	4.3	5	60 - 140	85
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.0	5	60 - 140	100
	Trihalomethan	Chloroform	mg/kg	0.1	2.3	2.56	60 - 140	91

Volatile Petroleum Hydrocarbons in Soil
Method: ME-(AU)-[ENV]AN433

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

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

Volatile Petroleum Hydrocarbons in Soil (continued)

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145412.002	TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	83
	TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	77
	Surrogates						
	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	83
	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	5	60 - 140	85
	d8-toluene (Surrogate)	mg/kg	-	4.0	5	60 - 140	80
	Bromofluorobenzene (Surrogate)	mg/kg	-	4.8	5	60 - 140	95
VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	94

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%
SE177639.004	LB145450.004	Mercury	mg/kg	0.05	0.34	0.13329935512	0.2	101

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Original	Spike	Recovery%
SE177740.002	LB145393.027	Naphthalene	mg/kg	0.1	0	4	116
		2-methylnaphthalene	mg/kg	0.1	0	-	-
		1-methylnaphthalene	mg/kg	0.1	0	-	-
		Acenaphthylene	mg/kg	0.1	0	4	116
		Acenaphthene	mg/kg	0.1	0	4	102
		Fluorene	mg/kg	0.1	0	-	-
		Phenanthrene	mg/kg	0.1	0	4	114
		Anthracene	mg/kg	0.1	0	4	108
		Fluoranthene	mg/kg	0.1	0	4	108
		Pyrene	mg/kg	0.1	0	4	105
		Benzo(a)anthracene	mg/kg	0.1	0	-	-
		Chrysene	mg/kg	0.1	0	-	-
		Benzo(b&j)fluoranthene	mg/kg	0.1	0	-	-
		Benzo(k)fluoranthene	mg/kg	0.1	0	-	-
		Benzo(a)pyrene	mg/kg	0.1	0	4	137
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0	-	-
		Dibenzo(ah)anthracene	mg/kg	0.1	0	-	-
		Benzo(ghi)perylene	mg/kg	0.1	0	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.242	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.121	-	-
		Total PAH (18)	mg/kg	0.8	0	-	-
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.37	-	72
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.49	-	102
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.37	-	76

Total Cyanide in soil by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN077/AN287

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE177739.007	LB145408.007	Total Cyanide	mg/kg	0.5	<0.5	<0.5	0.25	91

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%
SE177739.005	LB145517.004	Silver, Ag	mg/kg	1	<1	<1	1	69 ⊕
		Arsenic, As	mg/kg	3	53	<3	50	104
		Cadmium, Cd	mg/kg	0.3	54	<0.3	50	108
		Chromium, Cr	mg/kg	0.3	60	2.3	50	116
		Copper, Cu	mg/kg	0.5	83	16	50	134 ⊕
		Molybdenum, Mo	mg/kg	1	52	<1	50	104
		Nickel, Ni	mg/kg	0.5	57	1.0	50	113
		Lead, Pb	mg/kg	1	72	20	50	105
		Selenium, Se	mg/kg	3	7	<3	10	76
		Tin, Sn	mg/kg	3	52	<3	50	106
		Zinc, Zn	mg/kg	0.5	74	7.9	50	133 ⊕
	SE177740.005	LB145484.004	Arsenic, As	mg/kg	3	50	1.23742399115	97
			Cadmium, Cd	mg/kg	0.3	52	0.04598535102	105
			Chromium, Cr	mg/kg	0.3	55	1.23324350469	107
			Copper, Cu	mg/kg	0.5	79	23.36891929242	112
			Nickel, Ni	mg/kg	0.5	53	0.22574626865	105
			Lead, Pb	mg/kg	1	63	7.42454394693	110
			Zinc, Zn	mg/kg	0.5	55	4.43967661691	102

TRH (Total Recoverable Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR
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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.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

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

QC Sample	Sample Number	Parameter	Units	LOR	Original	Spike	Recovery%
SE177740.002	LB145393.027	TRH C10-C14	mg/kg	20	0	40	100
		TRH C15-C28	mg/kg	45	4	40	118
		TRH C29-C36	mg/kg	45	0	40	110
		TRH C37-C40	mg/kg	100	0	-	-
		TRH C10-C36 Total	mg/kg	110	0	-	-
		TRH C10-C40 Total (F bands)	mg/kg	210	0	-	-
		TRH F Bands	mg/kg	25	0	40	123
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	0	-	-
		TRH >C16-C34 (F3)	mg/kg	90	0	40	115
		TRH >C34-C40 (F4)	mg/kg	120	0	-	-

VOC's in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE177740.001	LB145412.004	Monocyclic	Benzene	mg/kg	0.1	1.8	0.03	2.9	62
			Aromatic	Toluene	mg/kg	0.1	2.0	0	2.9
		Ethylbenzene		mg/kg	0.1	1.9	0	2.9	64
		m/p-xylene		mg/kg	0.2	4.8	0	5.8	82
		o-xylene		mg/kg	0.1	2.2	0	2.9	75
		Polycyclic		Naphthalene	mg/kg	0.1	<0.1	0	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.3	4.21	-	86
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	4.22	-	88
			d8-toluene (Surrogate)	mg/kg	-	4.3	3.91	-	86
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.9	3.56	-	99
		Totals	Total Xylenes	mg/kg	0.3	7.0	0	-	-
			Total BTEX	mg/kg	0.6	13	0.03	-	-

Volatile Petroleum Hydrocarbons in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE177740.001	LB145412.004	TRH C6-C10	mg/kg	25	<25	0	24.65	85	
		TRH C6-C9	mg/kg	20	<20	0	23.2	79	
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.3	4.21	-	86
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	4.22	-	88
			d8-toluene (Surrogate)	mg/kg	-	4.3	3.91	-	86
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.9	3.56	-	99
		VPH F	Benzene (F0)	mg/kg	0.1	1.8	0.03	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	-0.03	7.25	117

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

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

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

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

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the 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 : <http://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.
 - 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 Analytical Report comments for further information.

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SGS Reference SE178016 R0
Date Received 16/4/2018
Date Reported 19/4/2018

COMMENTS

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

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

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES



Akheequear Beniamen
Chemist



Kamrul Ahsan
Senior Chemist



Ravee Sivasubramaniam
Hygiene Team Leader



Shane McDermott
Inorganic/Metals Chemist

VOC's in Soil [AN433] Tested: 17/4/2018

PARAMETER	UOM	LOR	E23	E24	E25	E26	E27
			SOIL - 16/4/2018 SE178016.001	SOIL - 16/4/2018 SE178016.002	SOIL - 16/4/2018 SE178016.003	SOIL - 16/4/2018 SE178016.004	SOIL - 16/4/2018 SE178016.005
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorodifluoromethane (CFC-12)	mg/kg	1	<1	-	-	-	<1
Chloromethane	mg/kg	1	<1	-	-	-	<1
Vinyl chloride (Chloroethene)	mg/kg	0.1	<0.1	-	-	-	<0.1
Styrene (Vinyl benzene)	mg/kg	0.1	<0.1	-	-	-	<0.1
Chloroethane	mg/kg	1	<1	-	-	-	<1
Trichlorofluoromethane	mg/kg	1	<1	-	-	-	<1
Isopropylbenzene (Cumene)	mg/kg	0.1	<0.1	-	-	-	<0.1
1,1-dichloroethene	mg/kg	0.1	<0.1	-	-	-	<0.1
Dichloromethane (Methylene chloride)	mg/kg	0.5	<0.5	-	-	-	<0.5
n-propylbenzene	mg/kg	0.1	<0.1	-	-	-	<0.1
Allyl chloride	mg/kg	0.1	<0.1	-	-	-	<0.1
1,3,5-trimethylbenzene	mg/kg	0.1	<0.1	-	-	-	<0.1
tert-butylbenzene	mg/kg	0.1	<0.1	-	-	-	<0.1
trans-1,2-dichloroethene	mg/kg	0.1	<0.1	-	-	-	<0.1
1,2,4-trimethylbenzene	mg/kg	0.1	<0.1	-	-	-	<0.1
1,1-dichloroethane	mg/kg	0.1	<0.1	-	-	-	<0.1
sec-butylbenzene	mg/kg	0.1	<0.1	-	-	-	<0.1
cis-1,2-dichloroethene	mg/kg	0.1	<0.1	-	-	-	<0.1
p-isopropyltoluene	mg/kg	0.1	<0.1	-	-	-	<0.1
Bromochloromethane	mg/kg	0.1	<0.1	-	-	-	<0.1
n-butylbenzene	mg/kg	0.1	<0.1	-	-	-	<0.1
Chloroform	mg/kg	0.1	<0.1	-	-	-	<0.1
2,2-dichloropropane	mg/kg	0.1	<0.1	-	-	-	<0.1
1,2-dichloroethane	mg/kg	0.1	<0.1	-	-	-	<0.1
Total MAH*	mg/kg	1.8	<1.8	-	-	-	<1.8
1,1,1-trichloroethane	mg/kg	0.1	<0.1	-	-	-	<0.1
1,1-dichloropropene	mg/kg	0.1	<0.1	-	-	-	<0.1
Carbon tetrachloride	mg/kg	0.1	<0.1	-	-	-	<0.1
1,2-dichloropropane	mg/kg	0.1	<0.1	-	-	-	<0.1
Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	<0.1	-	-	-	<0.1
Bromodichloromethane	mg/kg	0.1	<0.1	-	-	-	<0.1
cis-1,3-dichloropropene	mg/kg	0.1	<0.1	-	-	-	<0.1
trans-1,3-dichloropropene	mg/kg	0.1	<0.1	-	-	-	<0.1
1,1,2-trichloroethane	mg/kg	0.1	<0.1	-	-	-	<0.1
1,3-dichloropropane	mg/kg	0.1	<0.1	-	-	-	<0.1
Chlorodibromomethane	mg/kg	0.1	<0.1	-	-	-	<0.1
Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	<0.1	-	-	-	<0.1
1,1,1,2-tetrachloroethane	mg/kg	0.1	<0.1	-	-	-	<0.1
Chlorobenzene	mg/kg	0.1	<0.1	-	-	-	<0.1
cis-1,4-dichloro-2-butene	mg/kg	1	<1	-	-	-	<1
1,1,2,2-tetrachloroethane	mg/kg	0.1	<0.1	-	-	-	<0.1
1,2,3-trichloropropane	mg/kg	0.1	<0.1	-	-	-	<0.1
trans-1,4-dichloro-2-butene	mg/kg	1	<1	-	-	-	<1
2-chlorotoluene	mg/kg	0.1	<0.1	-	-	-	<0.1
4-chlorotoluene	mg/kg	0.1	<0.1	-	-	-	<0.1
1,3-dichlorobenzene	mg/kg	0.1	<0.1	-	-	-	<0.1
1,4-dichlorobenzene	mg/kg	0.1	<0.1	-	-	-	<0.1
1,2-dichlorobenzene	mg/kg	0.1	<0.1	-	-	-	<0.1

VOC's in Soil [AN433] Tested: 17/4/2018 (continued)

PARAMETER	UOM	LOR	E23	E24	E25	E26	E27
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			16/4/2018 SE178016.001	16/4/2018 SE178016.002	16/4/2018 SE178016.003	16/4/2018 SE178016.004	16/4/2018 SE178016.005
1,2-dibromo-3-chloropropane	mg/kg	0.1	<0.1	-	-	-	<0.1
1,2,4-trichlorobenzene	mg/kg	0.1	<0.1	-	-	-	<0.1
Hexachlorobutadiene	mg/kg	0.1	<0.1	-	-	-	<0.1
1,2,3-trichlorobenzene	mg/kg	0.1	<0.1	-	-	-	<0.1
Total Chlorinated VOC*	mg/kg	3	<3.0	-	-	-	<3.0

VOC's in Soil [AN433] Tested: 17/4/2018 (continued)

PARAMETER	UOM	LOR	E28	E29	E30	E31	E32
			SOIL - 16/4/2018 SE178016.006	SOIL - 16/4/2018 SE178016.007	SOIL - 16/4/2018 SE178016.008	SOIL - 16/4/2018 SE178016.009	SOIL - 16/4/2018 SE178016.010
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorodifluoromethane (CFC-12)	mg/kg	1	-	<1	-	<1	-
Chloromethane	mg/kg	1	-	<1	-	<1	-
Vinyl chloride (Chloroethene)	mg/kg	0.1	-	<0.1	-	<0.1	-
Styrene (Vinyl benzene)	mg/kg	0.1	-	<0.1	-	<0.1	-
Chloroethane	mg/kg	1	-	<1	-	<1	-
Trichlorofluoromethane	mg/kg	1	-	<1	-	<1	-
Isopropylbenzene (Cumene)	mg/kg	0.1	-	<0.1	-	<0.1	-
1,1-dichloroethene	mg/kg	0.1	-	<0.1	-	<0.1	-
Dichloromethane (Methylene chloride)	mg/kg	0.5	-	<0.5	-	<0.5	-
n-propylbenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
Allyl chloride	mg/kg	0.1	-	<0.1	-	<0.1	-
1,3,5-trimethylbenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
tert-butylbenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
trans-1,2-dichloroethene	mg/kg	0.1	-	<0.1	-	<0.1	-
1,2,4-trimethylbenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
1,1-dichloroethane	mg/kg	0.1	-	<0.1	-	<0.1	-
sec-butylbenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
cis-1,2-dichloroethene	mg/kg	0.1	-	<0.1	-	<0.1	-
p-isopropyltoluene	mg/kg	0.1	-	<0.1	-	<0.1	-
Bromochloromethane	mg/kg	0.1	-	<0.1	-	<0.1	-
n-butylbenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
Chloroform	mg/kg	0.1	-	<0.1	-	<0.1	-
2,2-dichloropropane	mg/kg	0.1	-	<0.1	-	<0.1	-
1,2-dichloroethane	mg/kg	0.1	-	<0.1	-	<0.1	-
Total MAH*	mg/kg	1.8	-	<1.8	-	<1.8	-
1,1,1-trichloroethane	mg/kg	0.1	-	<0.1	-	<0.1	-
1,1-dichloropropene	mg/kg	0.1	-	<0.1	-	<0.1	-
Carbon tetrachloride	mg/kg	0.1	-	<0.1	-	<0.1	-
1,2-dichloropropane	mg/kg	0.1	-	<0.1	-	<0.1	-
Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	-	<0.1	-	<0.1	-
Bromodichloromethane	mg/kg	0.1	-	<0.1	-	<0.1	-
cis-1,3-dichloropropene	mg/kg	0.1	-	<0.1	-	<0.1	-
trans-1,3-dichloropropene	mg/kg	0.1	-	<0.1	-	<0.1	-
1,1,2-trichloroethane	mg/kg	0.1	-	<0.1	-	<0.1	-
1,3-dichloropropane	mg/kg	0.1	-	<0.1	-	<0.1	-
Chlorodibromomethane	mg/kg	0.1	-	<0.1	-	<0.1	-
Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	-	<0.1	-	<0.1	-
1,1,1,2-tetrachloroethane	mg/kg	0.1	-	<0.1	-	<0.1	-
Chlorobenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
cis-1,4-dichloro-2-butene	mg/kg	1	-	<1	-	<1	-
1,1,2,2-tetrachloroethane	mg/kg	0.1	-	<0.1	-	<0.1	-
1,2,3-trichloropropane	mg/kg	0.1	-	<0.1	-	<0.1	-
trans-1,4-dichloro-2-butene	mg/kg	1	-	<1	-	<1	-
2-chlorotoluene	mg/kg	0.1	-	<0.1	-	<0.1	-
4-chlorotoluene	mg/kg	0.1	-	<0.1	-	<0.1	-
1,3-dichlorobenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
1,4-dichlorobenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
1,2-dichlorobenzene	mg/kg	0.1	-	<0.1	-	<0.1	-

VOC's in Soil [AN433] Tested: 17/4/2018 (continued)

PARAMETER	UOM	LOR	E28	E29	E30	E31	E32
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			16/4/2018 SE178016.006	16/4/2018 SE178016.007	16/4/2018 SE178016.008	16/4/2018 SE178016.009	16/4/2018 SE178016.010
1,2-dibromo-3-chloropropane	mg/kg	0.1	-	<0.1	-	<0.1	-
1,2,4-trichlorobenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
Hexachlorobutadiene	mg/kg	0.1	-	<0.1	-	<0.1	-
1,2,3-trichlorobenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
Total Chlorinated VOC*	mg/kg	3	-	<3.0	-	<3.0	-

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 17/4/2018

PARAMETER	UOM	LOR	E23	E24	E25	E26	E27
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			16/4/2018 SE178016.001	16/4/2018 SE178016.002	16/4/2018 SE178016.003	16/4/2018 SE178016.004	16/4/2018 SE178016.005
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	E28	E29	E30	E31	E32
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			16/4/2018 SE178016.006	16/4/2018 SE178016.007	16/4/2018 SE178016.008	16/4/2018 SE178016.009	16/4/2018 SE178016.010
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 17/4/2018

PARAMETER	UOM	LOR	E23	E24	E25	E26	E27
			SOIL	SOIL	SOIL	SOIL	SOIL
			16/4/2018 SE178016.001	16/4/2018 SE178016.002	16/4/2018 SE178016.003	16/4/2018 SE178016.004	16/4/2018 SE178016.005
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	E28	E29	E30	E31	E32
			SOIL	SOIL	SOIL	SOIL	SOIL
			16/4/2018 SE178016.006	16/4/2018 SE178016.007	16/4/2018 SE178016.008	16/4/2018 SE178016.009	16/4/2018 SE178016.010
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 17/4/2018

PARAMETER	UOM	LOR	E23	E24	E25	E26	E27
			SOIL	SOIL	SOIL	SOIL	SOIL
			16/4/2018 SE178016.001	16/4/2018 SE178016.002	16/4/2018 SE178016.003	16/4/2018 SE178016.004	16/4/2018 SE178016.005
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	E28	E29	E30	E31	E32
			SOIL	SOIL	SOIL	SOIL	SOIL
			16/4/2018 SE178016.006	16/4/2018 SE178016.007	16/4/2018 SE178016.008	16/4/2018 SE178016.009	16/4/2018 SE178016.010
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

OC Pesticides in Soil [AN420] Tested: 17/4/2018

PARAMETER	UOM	LOR	E23	E27	E29	E31
			SOIL	SOIL	SOIL	SOIL
			16/4/2018 SE178016.001	16/4/2018 SE178016.005	16/4/2018 SE178016.007	16/4/2018 SE178016.009
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	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

PCBs in Soil [AN420] Tested: 17/4/2018

PARAMETER	UOM	LOR	E23	E27	E29	E31
			SOIL	SOIL	SOIL	SOIL
			-	-	-	-
			16/4/2018 SE178016.001	16/4/2018 SE178016.005	16/4/2018 SE178016.007	16/4/2018 SE178016.009
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

Speciated Phenols in Soil [AN420] Tested: 17/4/2018

PARAMETER	UOM	LOR	E23	E27	E29	E31
			SOIL - 16/4/2018 SE178016.001	SOIL - 16/4/2018 SE178016.005	SOIL - 16/4/2018 SE178016.007	SOIL - 16/4/2018 SE178016.009
Phenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	<1	<1
Total Cresol	mg/kg	1.5	<1.5	<1.5	<1.5	<1.5
2-chlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2-nitrophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
4-nitrophenol	mg/kg	1	<1	<1	<1	<1
2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	<1	<1
Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	mg/kg	2	<2	<2	<2	<2
4-chloro-3-methylphenol	mg/kg	2	<2	<2	<2	<2

pH in soil (1:5) [AN101] Tested: 18/4/2018

			E24	E25	E26	E28	E30
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			16/4/2018	16/4/2018	16/4/2018	16/4/2018	16/4/2018
PARAMETER	UOM	LOR	SE178016.002	SE178016.003	SE178016.004	SE178016.006	SE178016.008
pH	pH Units	0.1	6.9	5.7	5.7	6.6	6.7

			E32
			SOIL
			-
			16/4/2018
PARAMETER	UOM	LOR	SE178016.010
pH	pH Units	0.1	6.0

Conductivity and TDS by Calculation - Soil [AN106] Tested: 18/4/2018

			E24	E25	E26	E28	E30
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			16/4/2018	16/4/2018	16/4/2018	16/4/2018	16/4/2018
PARAMETER	UOM	LOR	SE178016.002	SE178016.003	SE178016.004	SE178016.006	SE178016.008
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	63	66	66	69	67

			E32
			SOIL
			-
			16/4/2018
PARAMETER	UOM	LOR	SE178016.010
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	54

Total Cyanide in soil by Discrete Analyser (Aquakem) [AN077/AN287] Tested: 18/4/2018

PARAMETER	UOM	LOR	E23	E27	E29	E31
			SOIL	SOIL	SOIL	SOIL
			-	-	-	-
			16/4/2018 SE178016.001	16/4/2018 SE178016.005	16/4/2018 SE178016.007	16/4/2018 SE178016.009
Total Cyanide	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Total Cyanide Post Chlorination	mg/kg	0.5	-	-	-	-
Cyanide Amenable to Chlorination	mg/kg	0.5	-	-	-	-



ANALYTICAL RESULTS

SE178016 R0

Hexavalent Chromium in Soil UV/Vis [AN075/AN201] Tested: 18/4/2018

			E23	E27	E29	E31
			SOIL	SOIL	SOIL	SOIL
			-	-	-	-
			16/4/2018	16/4/2018	16/4/2018	16/4/2018
			SE178016.001	SE178016.005	SE178016.007	SE178016.009
PARAMETER	UOM	LOR				
Hexavalent Chromium, Cr6+	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5



ANALYTICAL RESULTS

SE178016 R0

Total Fluoride in Soil [AN142] Tested: 18/4/2018

			E23	E27	E29	E31
			SOIL	SOIL	SOIL	SOIL
			-	-	-	-
			16/4/2018	16/4/2018	16/4/2018	16/4/2018
			SE178016.001	SE178016.005	SE178016.007	SE178016.009
PARAMETER	UOM	LOR				
Total Fluoride	mg/kg	50	280	230	290	300

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 18/4/2018

PARAMETER	UOM	LOR	E23	E24	E25	E26	E27
			SOIL	SOIL	SOIL	SOIL	SOIL
			16/4/2018 SE178016.001	16/4/2018 SE178016.002	16/4/2018 SE178016.003	16/4/2018 SE178016.004	16/4/2018 SE178016.005
Arsenic, As	mg/kg	3	<3	5	10	5	6
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	6.2	10	2.6	4.7	10
Copper, Cu	mg/kg	0.5	20	25	20	22	24
Lead, Pb	mg/kg	1	17	15	52	19	15
Nickel, Ni	mg/kg	0.5	4.5	13	1.7	1.3	7.1
Zinc, Zn	mg/kg	0.5	24	45	19	13	32
Molybdenum, Mo	mg/kg	1	<1	-	-	-	<1
Tin, Sn	mg/kg	3	<3	-	-	-	<3
Selenium, Se	mg/kg	3	<3	-	-	-	<3
Silver, Ag	mg/kg	1	<1	-	-	-	<1

PARAMETER	UOM	LOR	E28	E29	E30	E31	E32
			SOIL	SOIL	SOIL	SOIL	SOIL
			16/4/2018 SE178016.006	16/4/2018 SE178016.007	16/4/2018 SE178016.008	16/4/2018 SE178016.009	16/4/2018 SE178016.010
Arsenic, As	mg/kg	3	5	4	<3	<3	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	11	8.9	7.2	5.0	4.6
Copper, Cu	mg/kg	0.5	27	23	23	16	21
Lead, Pb	mg/kg	1	15	15	10	17	16
Nickel, Ni	mg/kg	0.5	12	8.2	8.0	3.1	3.6
Zinc, Zn	mg/kg	0.5	42	28	37	12	23
Molybdenum, Mo	mg/kg	1	-	<1	-	<1	-
Tin, Sn	mg/kg	3	-	<3	-	<3	-
Selenium, Se	mg/kg	3	-	<3	-	<3	-
Silver, Ag	mg/kg	1	-	<1	-	<1	-

PARAMETER	UOM	LOR	E33
			SOIL
			16/4/2018 SE178016.011
Arsenic, As	mg/kg	3	-
Cadmium, Cd	mg/kg	0.3	-
Chromium, Cr	mg/kg	0.3	-
Copper, Cu	mg/kg	0.5	-
Lead, Pb	mg/kg	1	14
Nickel, Ni	mg/kg	0.5	-
Zinc, Zn	mg/kg	0.5	-
Molybdenum, Mo	mg/kg	1	-
Tin, Sn	mg/kg	3	-
Selenium, Se	mg/kg	3	-
Silver, Ag	mg/kg	1	-

Mercury in Soil [AN312] Tested: 17/4/2018

			E23	E24	E25	E26	E27
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			16/4/2018	16/4/2018	16/4/2018	16/4/2018	16/4/2018
PARAMETER	UOM	LOR	SE178016.001	SE178016.002	SE178016.003	SE178016.004	SE178016.005
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

			E28	E29	E30	E31	E32
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			16/4/2018	16/4/2018	16/4/2018	16/4/2018	16/4/2018
PARAMETER	UOM	LOR	SE178016.006	SE178016.007	SE178016.008	SE178016.009	SE178016.010
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 18/4/2018

			E23	E24	E25	E26	E27
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			16/4/2018	16/4/2018	16/4/2018	16/4/2018	16/4/2018
PARAMETER	UOM	LOR	SE178016.001	SE178016.002	SE178016.003	SE178016.004	SE178016.005
% Moisture	%w/w	0.5	12	8.8	14	11	10

			E28	E29	E30	E31	E32
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			16/4/2018	16/4/2018	16/4/2018	16/4/2018	16/4/2018
PARAMETER	UOM	LOR	SE178016.006	SE178016.007	SE178016.008	SE178016.009	SE178016.010
% Moisture	%w/w	0.5	10	9.5	11	15	13

			E33
			SOIL
			-
			16/4/2018
PARAMETER	UOM	LOR	SE178016.011
% Moisture	%w/w	0.5	13

Fibre Identification in soil [AN602] Tested: 18/4/2018

PARAMETER	UOM	LOR	E23	E24	E25	E26	E27
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			16/4/2018 SE178016.001	16/4/2018 SE178016.002	16/4/2018 SE178016.003	16/4/2018 SE178016.004	16/4/2018 SE178016.005
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	E28	E29	E30	E31	E32
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			16/4/2018 SE178016.006	16/4/2018 SE178016.007	16/4/2018 SE178016.008	16/4/2018 SE178016.009	16/4/2018 SE178016.010
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

METHOD

METHODOLOGY SUMMARY

AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN075	This method uses an alkaline digestion to solubilise both water-soluble and water-insoluble forms of hexavalent chromium in solids. The solution is then pH adjusted and the hexavalent chromium concentration in solution determined colourimetrically.
AN077	Hydrogen cyanide is liberated from an acidified alkali soil extract by distillation and purging with air. The hydrogen cyanide gas is then collected by passing it through a sodium hydroxide scrubbing solution. The scrubbing solution will then be analysed for cyanide by the appropriate method.
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode and is calibrated against 3 buffers purchased commercially. For soils, sediments and sludges, an extract with water (or 0.01M CaCl ₂) is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN106	Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos/cm or µS/cm @ 25°C. For soils, an extract with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Salinity can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. Reference APHA 2510 B.
AN142	Fluoride can be measured in soil as water extractable or 'total' by Ion Selective electrode. In this method the solid sample is weighed and then fused with sodium hydroxide at 600°C. The sample is carefully neutralise with hydrochloric acid and the solution of the melt is cooled and made up to volume. The final solution is then compared to synthetic Digestion Matrix standards with analysis by ISE electrode for a total fluoride result after being calculated back to original mass.
AN201	Cr ⁶⁺ is determined colourimetrically by reaction with diphenylcarbazide in acid solution. A red-violet colour of unknown composition is produced.
AN287	A buffered distillate or water sample is treated with chloramine/barbituric acid reagents and the intensity of the colour developed is proportional to the cyanide concentration by Aquakem DA .
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 Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).

AN433

VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC's are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

AN602

Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.

AN602

Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.

AN602

AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

AN602

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

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

FOOTNOTES

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

Samples analysed as received.
Solid samples expressed on a dry weight basis.

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

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

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

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

Note that in terms of units of radioactivity:

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

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

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : <http://www.sgs.com.au/~media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf>

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Project DDE-199
 Order Number (Not specified)
 Samples 10

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SGS Reference SE178016 R0
 Date Received 16 Apr 2018
 Date Reported 19 Apr 2018

COMMENTS

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

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

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES



Akheeque Beniamen
Chemist



Kamrul Ahsan
Senior Chemist



Ravee Sivasubramaniam
Hygiene Team Leader



Shane McDermott
Inorganic/Metals Chemist

RESULTS

Fibre Identification in soil

Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE178016.001	E23	Soil	123g Clay,Rocks	16 Apr 2018	No Asbestos Found	<0.01
SE178016.002	E24	Soil	144g Clay,Rocks	16 Apr 2018	No Asbestos Found	<0.01
SE178016.003	E25	Soil	87g Clay,Rocks	16 Apr 2018	No Asbestos Found	<0.01
SE178016.004	E26	Soil	98g Clay,Rocks	16 Apr 2018	No Asbestos Found	<0.01
SE178016.005	E27	Soil	118g Clay,Rocks	16 Apr 2018	No Asbestos Found	<0.01
SE178016.006	E28	Soil	122g Clay,Rocks	16 Apr 2018	No Asbestos Found	<0.01
SE178016.007	E29	Soil	113g Clay,Rocks	16 Apr 2018	No Asbestos Found	<0.01
SE178016.008	E30	Soil	155g Clay,Rocks	16 Apr 2018	No Asbestos Found	<0.01
SE178016.009	E31	Soil	100g Clay,Rocks	16 Apr 2018	No Asbestos Found	<0.01
SE178016.010	E32	Soil	108g Clay,Rocks	16 Apr 2018	No Asbestos Found	<0.01

METHOD

METHODOLOGY SUMMARY

AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states: "Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	<p>The sample can be reported "no asbestos found at the reporting limit of 0.1 g/kg" (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if-</p> <ul style="list-style-type: none"> (a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres); (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg; and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

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

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

Sampled by the client.

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

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

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

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

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : <http://www.sgs.com.au/~media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf>

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STATEMENT OF QA/QC PERFORMANCE

SE178016 R0

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Order Number (Not specified)
Samples 11

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SGS Reference SE178016 R0
Date Received 16 Apr 2018
Date Reported 19 Apr 2018

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 and was supplied by the Client.
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	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item
Matrix Spike	Mercury in Soil	1 item

SAMPLE SUMMARY

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.

Conductivity and TDS by Calculation - Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E24	SE178016.002	LB145992	16 Apr 2018	16 Apr 2018	23 Apr 2018	18 Apr 2018	23 Apr 2018	19 Apr 2018
E25	SE178016.003	LB145992	16 Apr 2018	16 Apr 2018	23 Apr 2018	18 Apr 2018	23 Apr 2018	19 Apr 2018
E26	SE178016.004	LB145992	16 Apr 2018	16 Apr 2018	23 Apr 2018	18 Apr 2018	23 Apr 2018	19 Apr 2018
E28	SE178016.006	LB145992	16 Apr 2018	16 Apr 2018	23 Apr 2018	18 Apr 2018	23 Apr 2018	19 Apr 2018
E30	SE178016.008	LB145992	16 Apr 2018	16 Apr 2018	23 Apr 2018	18 Apr 2018	23 Apr 2018	19 Apr 2018
E32	SE178016.010	LB145992	16 Apr 2018	16 Apr 2018	23 Apr 2018	18 Apr 2018	23 Apr 2018	19 Apr 2018

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E23	SE178016.001	LB145989	16 Apr 2018	16 Apr 2018	16 Apr 2019	18 Apr 2018	16 Apr 2019	19 Apr 2018
E24	SE178016.002	LB145989	16 Apr 2018	16 Apr 2018	16 Apr 2019	18 Apr 2018	16 Apr 2019	19 Apr 2018
E25	SE178016.003	LB145989	16 Apr 2018	16 Apr 2018	16 Apr 2019	18 Apr 2018	16 Apr 2019	19 Apr 2018
E26	SE178016.004	LB145989	16 Apr 2018	16 Apr 2018	16 Apr 2019	18 Apr 2018	16 Apr 2019	19 Apr 2018
E27	SE178016.005	LB145989	16 Apr 2018	16 Apr 2018	16 Apr 2019	18 Apr 2018	16 Apr 2019	19 Apr 2018
E28	SE178016.006	LB145989	16 Apr 2018	16 Apr 2018	16 Apr 2019	18 Apr 2018	16 Apr 2019	19 Apr 2018
E29	SE178016.007	LB145989	16 Apr 2018	16 Apr 2018	16 Apr 2019	18 Apr 2018	16 Apr 2019	19 Apr 2018
E30	SE178016.008	LB145989	16 Apr 2018	16 Apr 2018	16 Apr 2019	18 Apr 2018	16 Apr 2019	19 Apr 2018
E31	SE178016.009	LB145989	16 Apr 2018	16 Apr 2018	16 Apr 2019	18 Apr 2018	16 Apr 2019	19 Apr 2018
E32	SE178016.010	LB145989	16 Apr 2018	16 Apr 2018	16 Apr 2019	18 Apr 2018	16 Apr 2019	19 Apr 2018

Hexavalent Chromium in Soil UV/Vis

Method: ME-(AU)-[ENV]AN075/AN201

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E23	SE178016.001	LB145911	16 Apr 2018	16 Apr 2018	14 May 2018	18 Apr 2018	25 Apr 2018	19 Apr 2018
E27	SE178016.005	LB145911	16 Apr 2018	16 Apr 2018	14 May 2018	18 Apr 2018	25 Apr 2018	19 Apr 2018
E29	SE178016.007	LB145911	16 Apr 2018	16 Apr 2018	14 May 2018	18 Apr 2018	25 Apr 2018	19 Apr 2018
E31	SE178016.009	LB145911	16 Apr 2018	16 Apr 2018	14 May 2018	18 Apr 2018	25 Apr 2018	19 Apr 2018

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E23	SE178016.001	LB145894	16 Apr 2018	16 Apr 2018	14 May 2018	17 Apr 2018	14 May 2018	19 Apr 2018
E24	SE178016.002	LB145894	16 Apr 2018	16 Apr 2018	14 May 2018	17 Apr 2018	14 May 2018	19 Apr 2018
E25	SE178016.003	LB145894	16 Apr 2018	16 Apr 2018	14 May 2018	17 Apr 2018	14 May 2018	19 Apr 2018
E26	SE178016.004	LB145894	16 Apr 2018	16 Apr 2018	14 May 2018	17 Apr 2018	14 May 2018	19 Apr 2018
E27	SE178016.005	LB145894	16 Apr 2018	16 Apr 2018	14 May 2018	17 Apr 2018	14 May 2018	19 Apr 2018
E28	SE178016.006	LB145894	16 Apr 2018	16 Apr 2018	14 May 2018	17 Apr 2018	14 May 2018	19 Apr 2018
E29	SE178016.007	LB145894	16 Apr 2018	16 Apr 2018	14 May 2018	17 Apr 2018	14 May 2018	19 Apr 2018
E30	SE178016.008	LB145894	16 Apr 2018	16 Apr 2018	14 May 2018	17 Apr 2018	14 May 2018	19 Apr 2018
E31	SE178016.009	LB145894	16 Apr 2018	16 Apr 2018	14 May 2018	17 Apr 2018	14 May 2018	19 Apr 2018
E32	SE178016.010	LB145894	16 Apr 2018	16 Apr 2018	14 May 2018	17 Apr 2018	14 May 2018	19 Apr 2018

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E23	SE178016.001	LB145918	16 Apr 2018	16 Apr 2018	30 Apr 2018	18 Apr 2018	23 Apr 2018	19 Apr 2018
E24	SE178016.002	LB145918	16 Apr 2018	16 Apr 2018	30 Apr 2018	18 Apr 2018	23 Apr 2018	19 Apr 2018
E25	SE178016.003	LB145918	16 Apr 2018	16 Apr 2018	30 Apr 2018	18 Apr 2018	23 Apr 2018	19 Apr 2018
E26	SE178016.004	LB145918	16 Apr 2018	16 Apr 2018	30 Apr 2018	18 Apr 2018	23 Apr 2018	19 Apr 2018
E27	SE178016.005	LB145918	16 Apr 2018	16 Apr 2018	30 Apr 2018	18 Apr 2018	23 Apr 2018	19 Apr 2018
E28	SE178016.006	LB145918	16 Apr 2018	16 Apr 2018	30 Apr 2018	18 Apr 2018	23 Apr 2018	19 Apr 2018
E29	SE178016.007	LB145918	16 Apr 2018	16 Apr 2018	30 Apr 2018	18 Apr 2018	23 Apr 2018	19 Apr 2018
E30	SE178016.008	LB145918	16 Apr 2018	16 Apr 2018	30 Apr 2018	18 Apr 2018	23 Apr 2018	19 Apr 2018
E31	SE178016.009	LB145918	16 Apr 2018	16 Apr 2018	30 Apr 2018	18 Apr 2018	23 Apr 2018	19 Apr 2018
E32	SE178016.010	LB145918	16 Apr 2018	16 Apr 2018	30 Apr 2018	18 Apr 2018	23 Apr 2018	19 Apr 2018
E33	SE178016.011	LB145918	16 Apr 2018	16 Apr 2018	30 Apr 2018	18 Apr 2018	23 Apr 2018	19 Apr 2018

OC Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E23	SE178016.001	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E24	SE178016.002	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E25	SE178016.003	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E26	SE178016.004	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E27	SE178016.005	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E28	SE178016.006	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018

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.

OC Pesticides in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E29	SE178016.007	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E30	SE178016.008	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E31	SE178016.009	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E32	SE178016.010	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018

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
E23	SE178016.001	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E24	SE178016.002	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E25	SE178016.003	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E26	SE178016.004	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E27	SE178016.005	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E28	SE178016.006	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E29	SE178016.007	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E30	SE178016.008	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E31	SE178016.009	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E32	SE178016.010	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018

PCBs in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E23	SE178016.001	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E24	SE178016.002	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E25	SE178016.003	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E26	SE178016.004	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E27	SE178016.005	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E28	SE178016.006	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E29	SE178016.007	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E30	SE178016.008	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E31	SE178016.009	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E32	SE178016.010	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018

pH in soil (1:5)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E24	SE178016.002	LB145992	16 Apr 2018	16 Apr 2018	23 Apr 2018	18 Apr 2018	19 Apr 2018	19 Apr 2018
E25	SE178016.003	LB145992	16 Apr 2018	16 Apr 2018	23 Apr 2018	18 Apr 2018	19 Apr 2018	19 Apr 2018
E26	SE178016.004	LB145992	16 Apr 2018	16 Apr 2018	23 Apr 2018	18 Apr 2018	19 Apr 2018	19 Apr 2018
E28	SE178016.006	LB145992	16 Apr 2018	16 Apr 2018	23 Apr 2018	18 Apr 2018	19 Apr 2018	19 Apr 2018
E30	SE178016.008	LB145992	16 Apr 2018	16 Apr 2018	23 Apr 2018	18 Apr 2018	19 Apr 2018	19 Apr 2018
E32	SE178016.010	LB145992	16 Apr 2018	16 Apr 2018	23 Apr 2018	18 Apr 2018	19 Apr 2018	19 Apr 2018

Speciated Phenols in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E23	SE178016.001	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E24	SE178016.002	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E25	SE178016.003	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E26	SE178016.004	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E27	SE178016.005	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E28	SE178016.006	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E29	SE178016.007	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E30	SE178016.008	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E31	SE178016.009	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E32	SE178016.010	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018

Total Cyanide in soil by Discrete Analyser (AquaKem)

Method: ME-(AU)-[ENV]AN077/AN287

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E23	SE178016.001	LB145956	16 Apr 2018	16 Apr 2018	30 Apr 2018	18 Apr 2018	30 Apr 2018	19 Apr 2018
E27	SE178016.005	LB145956	16 Apr 2018	16 Apr 2018	30 Apr 2018	18 Apr 2018	30 Apr 2018	19 Apr 2018
E29	SE178016.007	LB145956	16 Apr 2018	16 Apr 2018	30 Apr 2018	18 Apr 2018	30 Apr 2018	19 Apr 2018
E31	SE178016.009	LB145956	16 Apr 2018	16 Apr 2018	30 Apr 2018	18 Apr 2018	30 Apr 2018	19 Apr 2018

Total Fluoride in Soil

Method: ME-(AU)-[ENV]AN142

Sample Name	Sample No.	QC Ref
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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.

Total Fluoride in Soil (continued)

Method: ME-(AU)-ENVJAN142

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E23	SE178016.001	LB145905	16 Apr 2018	16 Apr 2018	14 May 2018	18 Apr 2018	14 May 2018	19 Apr 2018
E27	SE178016.005	LB145905	16 Apr 2018	16 Apr 2018	14 May 2018	18 Apr 2018	14 May 2018	19 Apr 2018
E29	SE178016.007	LB145905	16 Apr 2018	16 Apr 2018	14 May 2018	18 Apr 2018	14 May 2018	19 Apr 2018
E31	SE178016.009	LB145905	16 Apr 2018	16 Apr 2018	14 May 2018	18 Apr 2018	14 May 2018	19 Apr 2018

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

Method: ME-(AU)-ENVJAN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E23	SE178016.001	LB145931	16 Apr 2018	16 Apr 2018	13 Oct 2018	18 Apr 2018	13 Oct 2018	19 Apr 2018
E24	SE178016.002	LB145931	16 Apr 2018	16 Apr 2018	13 Oct 2018	18 Apr 2018	13 Oct 2018	19 Apr 2018
E25	SE178016.003	LB145931	16 Apr 2018	16 Apr 2018	13 Oct 2018	18 Apr 2018	13 Oct 2018	19 Apr 2018
E26	SE178016.004	LB145931	16 Apr 2018	16 Apr 2018	13 Oct 2018	18 Apr 2018	13 Oct 2018	19 Apr 2018
E27	SE178016.005	LB145931	16 Apr 2018	16 Apr 2018	13 Oct 2018	18 Apr 2018	13 Oct 2018	19 Apr 2018
E28	SE178016.006	LB145931	16 Apr 2018	16 Apr 2018	13 Oct 2018	18 Apr 2018	13 Oct 2018	19 Apr 2018
E29	SE178016.007	LB145931	16 Apr 2018	16 Apr 2018	13 Oct 2018	18 Apr 2018	13 Oct 2018	19 Apr 2018
E30	SE178016.008	LB146016	16 Apr 2018	16 Apr 2018	13 Oct 2018	19 Apr 2018	13 Oct 2018	19 Apr 2018
E31	SE178016.009	LB146016	16 Apr 2018	16 Apr 2018	13 Oct 2018	19 Apr 2018	13 Oct 2018	19 Apr 2018
E32	SE178016.010	LB146016	16 Apr 2018	16 Apr 2018	13 Oct 2018	19 Apr 2018	13 Oct 2018	19 Apr 2018
E33	SE178016.011	LB146016	16 Apr 2018	16 Apr 2018	13 Oct 2018	19 Apr 2018	13 Oct 2018	19 Apr 2018

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-ENVJAN043

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E23	SE178016.001	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E24	SE178016.002	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E25	SE178016.003	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E26	SE178016.004	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E27	SE178016.005	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E28	SE178016.006	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E29	SE178016.007	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E30	SE178016.008	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E31	SE178016.009	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E32	SE178016.010	LB145875	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018

VOC's in Soil

Method: ME-(AU)-ENVJAN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E23	SE178016.001	LB145870	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E24	SE178016.002	LB145870	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E25	SE178016.003	LB145870	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E26	SE178016.004	LB145870	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E27	SE178016.005	LB145870	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E28	SE178016.006	LB145870	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E29	SE178016.007	LB145870	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E30	SE178016.008	LB145870	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E31	SE178016.009	LB145870	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E32	SE178016.010	LB145870	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-ENVJAN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E23	SE178016.001	LB145870	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E24	SE178016.002	LB145870	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E25	SE178016.003	LB145870	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E26	SE178016.004	LB145870	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E27	SE178016.005	LB145870	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E28	SE178016.006	LB145870	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E29	SE178016.007	LB145870	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E30	SE178016.008	LB145870	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E31	SE178016.009	LB145870	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018
E32	SE178016.010	LB145870	16 Apr 2018	16 Apr 2018	30 Apr 2018	17 Apr 2018	27 May 2018	19 Apr 2018

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)	E23	SE178016.001	%	60 - 130%	98
	E27	SE178016.005	%	60 - 130%	107
	E29	SE178016.007	%	60 - 130%	94
	E31	SE178016.009	%	60 - 130%	99

PAH (Polynuclear Aromatic Hydrocarbons) In Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	E23	SE178016.001	%	70 - 130%	82
	E24	SE178016.002	%	70 - 130%	82
	E25	SE178016.003	%	70 - 130%	88
	E26	SE178016.004	%	70 - 130%	86
	E27	SE178016.005	%	70 - 130%	86
	E28	SE178016.006	%	70 - 130%	70
	E29	SE178016.007	%	70 - 130%	84
	E30	SE178016.008	%	70 - 130%	76
	E31	SE178016.009	%	70 - 130%	82
	E32	SE178016.010	%	70 - 130%	74
d14-p-terphenyl (Surrogate)	E23	SE178016.001	%	70 - 130%	98
	E24	SE178016.002	%	70 - 130%	96
	E25	SE178016.003	%	70 - 130%	98
	E26	SE178016.004	%	70 - 130%	98
	E27	SE178016.005	%	70 - 130%	94
	E28	SE178016.006	%	70 - 130%	82
	E29	SE178016.007	%	70 - 130%	100
	E30	SE178016.008	%	70 - 130%	94
	E31	SE178016.009	%	70 - 130%	102
	E32	SE178016.010	%	70 - 130%	88
d5-nitrobenzene (Surrogate)	E23	SE178016.001	%	70 - 130%	72
	E24	SE178016.002	%	70 - 130%	74
	E25	SE178016.003	%	70 - 130%	80
	E26	SE178016.004	%	70 - 130%	76
	E27	SE178016.005	%	70 - 130%	78
	E28	SE178016.006	%	70 - 130%	72
	E29	SE178016.007	%	70 - 130%	76
	E30	SE178016.008	%	70 - 130%	74
	E31	SE178016.009	%	70 - 130%	74
	E32	SE178016.010	%	70 - 130%	74

PCBs In Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	E23	SE178016.001	%	60 - 130%	98
	E27	SE178016.005	%	60 - 130%	107
	E29	SE178016.007	%	60 - 130%	94
	E31	SE178016.009	%	60 - 130%	99

Speciated Phenols In Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2,4,6-Tribromophenol (Surrogate)	E23	SE178016.001	%	70 - 130%	96
	E27	SE178016.005	%	70 - 130%	104
	E29	SE178016.007	%	70 - 130%	103
	E31	SE178016.009	%	70 - 130%	97
d5-phenol (Surrogate)	E23	SE178016.001	%	50 - 130%	102
	E27	SE178016.005	%	50 - 130%	110
	E29	SE178016.007	%	50 - 130%	111
	E31	SE178016.009	%	50 - 130%	108

VOC's In Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	E23	SE178016.001	%	60 - 130%	88
	E24	SE178016.002	%	60 - 130%	81
	E25	SE178016.003	%	60 - 130%	75
	E26	SE178016.004	%	60 - 130%	73
	E27	SE178016.005	%	60 - 130%	83

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

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

VOC's in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	E28	SE178016.006	%	60 - 130%	82
	E29	SE178016.007	%	60 - 130%	86
	E30	SE178016.008	%	60 - 130%	72
	E31	SE178016.009	%	60 - 130%	84
	E32	SE178016.010	%	60 - 130%	74
d4-1,2-dichloroethane (Surrogate)	E23	SE178016.001	%	60 - 130%	71
	E24	SE178016.002	%	60 - 130%	80
	E25	SE178016.003	%	60 - 130%	78
	E26	SE178016.004	%	60 - 130%	81
	E27	SE178016.005	%	60 - 130%	77
	E28	SE178016.006	%	60 - 130%	83
	E29	SE178016.007	%	60 - 130%	70
	E30	SE178016.008	%	60 - 130%	78
	E31	SE178016.009	%	60 - 130%	80
	E32	SE178016.010	%	60 - 130%	91
d8-toluene (Surrogate)	E23	SE178016.001	%	60 - 130%	99
	E24	SE178016.002	%	60 - 130%	88
	E25	SE178016.003	%	60 - 130%	81
	E26	SE178016.004	%	60 - 130%	80
	E27	SE178016.005	%	60 - 130%	90
	E28	SE178016.006	%	60 - 130%	82
	E29	SE178016.007	%	60 - 130%	94
	E30	SE178016.008	%	60 - 130%	80
	E31	SE178016.009	%	60 - 130%	91
	E32	SE178016.010	%	60 - 130%	77
Dibromofluoromethane (Surrogate)	E23	SE178016.001	%	60 - 130%	74
	E24	SE178016.002	%	60 - 130%	84
	E25	SE178016.003	%	60 - 130%	89
	E26	SE178016.004	%	60 - 130%	84
	E27	SE178016.005	%	60 - 130%	76
	E28	SE178016.006	%	60 - 130%	87
	E29	SE178016.007	%	60 - 130%	80
	E30	SE178016.008	%	60 - 130%	78
	E31	SE178016.009	%	60 - 130%	80
	E32	SE178016.010	%	60 - 130%	93

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	E23	SE178016.001	%	60 - 130%	80
	E24	SE178016.002	%	60 - 130%	81
	E25	SE178016.003	%	60 - 130%	75
	E26	SE178016.004	%	60 - 130%	73
	E27	SE178016.005	%	60 - 130%	75
	E28	SE178016.006	%	60 - 130%	82
	E29	SE178016.007	%	60 - 130%	79
	E30	SE178016.008	%	60 - 130%	72
	E31	SE178016.009	%	60 - 130%	76
	E32	SE178016.010	%	60 - 130%	74
d4-1,2-dichloroethane (Surrogate)	E23	SE178016.001	%	60 - 130%	80
	E24	SE178016.002	%	60 - 130%	80
	E25	SE178016.003	%	60 - 130%	78
	E26	SE178016.004	%	60 - 130%	81
	E27	SE178016.005	%	60 - 130%	76
	E28	SE178016.006	%	60 - 130%	83
	E29	SE178016.007	%	60 - 130%	78
	E30	SE178016.008	%	60 - 130%	78
	E31	SE178016.009	%	60 - 130%	89
	E32	SE178016.010	%	60 - 130%	91
d8-toluene (Surrogate)	E23	SE178016.001	%	60 - 130%	73
	E24	SE178016.002	%	60 - 130%	88
	E25	SE178016.003	%	60 - 130%	81

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)	E26	SE178016.004	%	60 - 130%	80
	E27	SE178016.005	%	60 - 130%	86
	E28	SE178016.006	%	60 - 130%	82
	E29	SE178016.007	%	60 - 130%	72
	E30	SE178016.008	%	60 - 130%	80
	E31	SE178016.009	%	60 - 130%	71
	E32	SE178016.010	%	60 - 130%	77
Dibromofluoromethane (Surrogate)	E23	SE178016.001	%	60 - 130%	84
	E24	SE178016.002	%	60 - 130%	84
	E25	SE178016.003	%	60 - 130%	89
	E26	SE178016.004	%	60 - 130%	84
	E27	SE178016.005	%	60 - 130%	78
	E28	SE178016.006	%	60 - 130%	87
	E29	SE178016.007	%	60 - 130%	79
	E30	SE178016.008	%	60 - 130%	78
	E31	SE178016.009	%	60 - 130%	91
	E32	SE178016.010	%	60 - 130%	93

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

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

Conductivity and TDS by Calculation - Soil

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

Sample Number	Parameter	Units	LOR	Result
LB145992.001	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	0

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB145894.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB145875.001	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
	Alpha BHC	mg/kg	0.1	<0.1
	Lindane	mg/kg	0.1	<0.1
	Heptachlor	mg/kg	0.1	<0.1
	Aldrin	mg/kg	0.1	<0.1
	Beta BHC	mg/kg	0.1	<0.1
	Delta BHC	mg/kg	0.1	<0.1
	Heptachlor epoxide	mg/kg	0.1	<0.1
	Alpha Endosulfan	mg/kg	0.2	<0.2
	Gamma Chlordane	mg/kg	0.1	<0.1
	Alpha Chlordane	mg/kg	0.1	<0.1
	p,p'-DDE	mg/kg	0.1	<0.1
	Dieldrin	mg/kg	0.2	<0.2
	Endrin	mg/kg	0.2	<0.2
	Beta Endosulfan	mg/kg	0.2	<0.2
	p,p'-DDD	mg/kg	0.1	<0.1
	p,p'-DDT	mg/kg	0.1	<0.1
	Endosulfan sulphate	mg/kg	0.1	<0.1
	Endrin Aldehyde	mg/kg	0.1	<0.1
	Methoxychlor	mg/kg	0.1	<0.1
	Endrin Ketone	mg/kg	0.1	<0.1
	Isodrin	mg/kg	0.1	<0.1
	Mirex	mg/kg	0.1	<0.1
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	73

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB145875.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1
	Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
	Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
	Benzo(ghi)perylene	mg/kg	0.1	<0.1
	Total PAH (18)	mg/kg	0.8	<0.8
Surrogates	d5-nitrobenzene (Surrogate)	%	-	120
	2-fluorobiphenyl (Surrogate)	%	-	128
	d14-p-terphenyl (Surrogate)	%	-	122

PCBs in Soil

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

Sample Number	Parameter	Units	LOR
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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.

PCBs in Soil (continued)

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

Sample Number	Parameter	Units	LOR	Result
LB145875.001	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	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	73

Speciated Phenols in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB145875.001	Phenol	mg/kg	0.5	<0.5
	2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5
	3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1
	2-chlorophenol	mg/kg	0.5	<0.5
	2,4-dimethylphenol	mg/kg	0.5	<0.5
	2,6-dichlorophenol	mg/kg	0.5	<0.5
	2,4-dichlorophenol	mg/kg	0.5	<0.5
	2,4,6-trichlorophenol	mg/kg	0.5	<0.5
	2-nitrophenol	mg/kg	0.5	<0.5
	4-nitrophenol	mg/kg	1	<1
	2,4,5-trichlorophenol	mg/kg	0.5	<0.5
	2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1
	Pentachlorophenol	mg/kg	0.5	<0.5
	2,4-dinitrophenol	mg/kg	2	<2
	4-chloro-3-methylphenol	mg/kg	2	<2
Surrogates	2,4,6-Tribromophenol (Surrogate)	%	-	103
	d5-phenol (Surrogate)	%	-	104

Total Cyanide in soil by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN077/AN287

Sample Number	Parameter	Units	LOR	Result
LB145956.001	Total Cyanide	mg/kg	0.5	<0.5

Total Fluoride in Soil

Method: ME-(AU)-[ENV]AN142

Sample Number	Parameter	Units	LOR	Result
LB145905.001	Total Fluoride	mg/kg	50	0

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

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

Sample Number	Parameter	Units	LOR	Result
LB145931.001	Silver, Ag	mg/kg	1	<1
	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Molybdenum, Mo	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Selenium, Se	mg/kg	3	<3
	Tin, Sn	mg/kg	3	<3
	Zinc, Zn	mg/kg	0.5	<0.5
LB146016.001	Silver, Ag	mg/kg	1	<1
	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Molybdenum, Mo	mg/kg	1	<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.

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES (continued)

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

Sample Number	Parameter	Units	LOR	Result
LB146016.001	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Selenium, Se	mg/kg	3	<3
	Tin, Sn	mg/kg	3	<3
	Zinc, Zn	mg/kg	0.5	<0.5

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB145875.001	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	
LB145870.001	Fumigants	2,2-dichloropropane	mg/kg	0.1	<0.1	
		1,2-dichloropropane	mg/kg	0.1	<0.1	
		cis-1,3-dichloropropene	mg/kg	0.1	<0.1	
		trans-1,3-dichloropropene	mg/kg	0.1	<0.1	
	Halogenated Aliphatics	Dichlorodifluoromethane (CFC-12)	mg/kg	1	<1	
		Chloromethane	mg/kg	1	<1	
		Vinyl chloride (Chloroethene)	mg/kg	0.1	<0.1	
		Chloroethane	mg/kg	1	<1	
		Trichlorofluoromethane	mg/kg	1	<1	
		1,1-dichloroethene	mg/kg	0.1	<0.1	
		Dichloromethane (Methylene chloride)	mg/kg	0.5	<0.5	
		Allyl chloride	mg/kg	0.1	<0.1	
		trans-1,2-dichloroethene	mg/kg	0.1	<0.1	
		1,1-dichloroethane	mg/kg	0.1	<0.1	
		cis-1,2-dichloroethene	mg/kg	0.1	<0.1	
		Bromochloromethane	mg/kg	0.1	<0.1	
		1,2-dichloroethane	mg/kg	0.1	<0.1	
		1,1,1-trichloroethane	mg/kg	0.1	<0.1	
		1,1-dichloropropene	mg/kg	0.1	<0.1	
		Carbon tetrachloride	mg/kg	0.1	<0.1	
		Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	<0.1	
		1,1,2-trichloroethane	mg/kg	0.1	<0.1	
		1,3-dichloropropane	mg/kg	0.1	<0.1	
		Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	<0.1	
		1,1,1,2-tetrachloroethane	mg/kg	0.1	<0.1	
		cis-1,4-dichloro-2-butene	mg/kg	1	<1	
		1,1,2,2-tetrachloroethane	mg/kg	0.1	<0.1	
		1,2,3-trichloropropane	mg/kg	0.1	<0.1	
		trans-1,4-dichloro-2-butene	mg/kg	1	<1	
		1,2-dibromo-3-chloropropane	mg/kg	0.1	<0.1	
		Hexachlorobutadiene	mg/kg	0.1	<0.1	
		Halogenated Aromatics	Chlorobenzene	mg/kg	0.1	<0.1
			2-chlorotoluene	mg/kg	0.1	<0.1
			4-chlorotoluene	mg/kg	0.1	<0.1
			1,3-dichlorobenzene	mg/kg	0.1	<0.1
			1,4-dichlorobenzene	mg/kg	0.1	<0.1
	1,2-dichlorobenzene		mg/kg	0.1	<0.1	
	1,2,4-trichlorobenzene		mg/kg	0.1	<0.1	
	1,2,3-trichlorobenzene		mg/kg	0.1	<0.1	
	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	
		Styrene (Vinyl benzene)	mg/kg	0.1	<0.1	
		Isopropylbenzene (Cumene)	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.

VOC's in Soil (continued)

Method: ME-(AU)-ENVJAN433

Sample Number	Parameter	Units	LOR	Result
LB145870.001	Monocyclic Aromatic Hydrocarbons	n-propylbenzene	mg/kg	0.1
		1,3,5-trimethylbenzene	mg/kg	0.1
		tert-butylbenzene	mg/kg	0.1
		1,2,4-trimethylbenzene	mg/kg	0.1
		sec-butylbenzene	mg/kg	0.1
		p-isopropyltoluene	mg/kg	0.1
	Polycyclic VOCs	n-butylbenzene	mg/kg	0.1
		Naphthalene	mg/kg	0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-
		d4-1,2-dichloroethane (Surrogate)	%	-
		d8-toluene (Surrogate)	%	-
		Bromofluorobenzene (Surrogate)	%	-
	Totals	Total BTEX	mg/kg	0.6
		Total MAH*	mg/kg	1.8
		Total Chlorinated VOC*	mg/kg	3
	Trihalomethanes	Chloroform	mg/kg	0.1
		Bromodichloromethane	mg/kg	0.1
		Chlorodibromomethane	mg/kg	0.1

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-ENVJAN433

Sample Number	Parameter	Units	LOR	Result
LB145870.001	Surrogates	TRH C6-C9	mg/kg	20
		Dibromofluoromethane (Surrogate)	%	-
		d4-1,2-dichloroethane (Surrogate)	%	-
		d8-toluene (Surrogate)	%	-

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

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

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

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

Conductivity and TDS by Calculation - Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177968.002	LB145992.014	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	85.49679110457.802112787		30	6

Hexavalent Chromium in Soil UV/Vis

Method: ME-(AU)-[ENV]AN075/AN201

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178016.009	LB145911.007	Hexavalent Chromium, Cr6+	mg/kg	0.5	<0.5	0.6136089577	122	20

Mercury in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178016.001	LB145894.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE178016.010	LB145894.024	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177935.003	LB145918.011	% Moisture	%w/w	0.5	6.89655172417.1871127633		44	4
SE177976.003	LB145918.022	% Moisture	%w/w	0.5	19	20	35	3
SE177991.001	LB145918.033	% Moisture	%w/w	0.5	4.1	3.3	57	22
SE178016.009	LB145918.044	% Moisture	%w/w	0.5	15	12	37	22
SE178058.001	LB145918.048	% Moisture	%w/w	0.5	1.77935943062.0833333333		82	16

OC Pesticides in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178016.005	LB145875.035	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	0	200	0
		Alpha BHC	mg/kg	0.1	<0.1	0	200	0
		Lindane	mg/kg	0.1	<0.1	0	200	0
		Heptachlor	mg/kg	0.1	<0.1	0	200	0
		Aldrin	mg/kg	0.1	<0.1	0	200	0
		Beta BHC	mg/kg	0.1	<0.1	0	200	0
		Delta BHC	mg/kg	0.1	<0.1	0	200	0
		Heptachlor epoxide	mg/kg	0.1	<0.1	0	200	0
		o,p'-DDE	mg/kg	0.1	<0.1	0	200	0
		Alpha Endosulfan	mg/kg	0.2	<0.2	0	200	0
		Gamma Chlordane	mg/kg	0.1	<0.1	0	200	0
		Alpha Chlordane	mg/kg	0.1	<0.1	0	200	0
		trans-Nonachlor	mg/kg	0.1	<0.1	0	200	0
		p,p'-DDE	mg/kg	0.1	<0.1	0	200	0
		Dieldrin	mg/kg	0.2	<0.2	0	200	0
		Endrin	mg/kg	0.2	<0.2	0	200	0
		o,p'-DDD	mg/kg	0.1	<0.1	0	200	0
		o,p'-DDT	mg/kg	0.1	<0.1	0	200	0
		Beta Endosulfan	mg/kg	0.2	<0.2	0	200	0
		p,p'-DDD	mg/kg	0.1	<0.1	0	200	0
		p,p'-DDT	mg/kg	0.1	<0.1	0	200	0
		Endosulfan sulphate	mg/kg	0.1	<0.1	0	200	0
		Endrin Aldehyde	mg/kg	0.1	<0.1	0	200	0
		Methoxychlor	mg/kg	0.1	<0.1	0	200	0
		Endrin Ketone	mg/kg	0.1	<0.1	0	200	0
		Isodrin	mg/kg	0.1	<0.1	0	200	0
		Mirex	mg/kg	0.1	<0.1	0	200	0
		Total CLP OC Pesticides	mg/kg	1	<1	0	200	0
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.147	30	8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178016.005	LB145875.035	Naphthalene	mg/kg	0.1	<0.1	0	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
		1-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
		Acenaphthylene	mg/kg	0.1	<0.1	0	200	0

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

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

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-ENVJAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178016.005	LB145875.035	Acenaphthene	mg/kg	0.1	<0.1	0	200	0
		Fluorene	mg/kg	0.1	<0.1	0	200	0
		Phenanthrene	mg/kg	0.1	<0.1	0	200	0
		Anthracene	mg/kg	0.1	<0.1	0	200	0
		Fluoranthene	mg/kg	0.1	<0.1	0	200	0
		Pyrene	mg/kg	0.1	<0.1	0	200	0
		Benzo(a)anthracene	mg/kg	0.1	<0.1	0.01	200	0
		Chrysene	mg/kg	0.1	<0.1	0.01	200	0
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0	200	0
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0	200	0
		Benzo(a)pyrene	mg/kg	0.1	<0.1	0	200	0
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0	200	0
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0	200	0
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	0	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	0	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	0.242	134	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	0.121	175	0
		Total PAH (18)	mg/kg	0.8	<0.8	0	200	0
		Surrogates						
		d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.37	30	5
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.45	30	5
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.49	30	4

PCBs in Soil

Method: ME-(AU)-ENVJAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178016.005	LB145875.034	Arochlor 1016	mg/kg	0.2	<0.2	0	200	0
		Arochlor 1221	mg/kg	0.2	<0.2	0	200	0
		Arochlor 1232	mg/kg	0.2	<0.2	0	200	0
		Arochlor 1242	mg/kg	0.2	<0.2	0	200	0
		Arochlor 1248	mg/kg	0.2	<0.2	0	200	0
		Arochlor 1254	mg/kg	0.2	<0.2	0	200	0
		Arochlor 1260	mg/kg	0.2	<0.2	0	200	0
		Arochlor 1262	mg/kg	0.2	<0.2	0	200	0
		Arochlor 1268	mg/kg	0.2	<0.2	0	200	0
		Total PCBs (Arochlors)	mg/kg	1	<1	0	200	0
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)		mg/kg	-	0.16	0.147	30	8

pH in soil (1:5)

Method: ME-(AU)-ENVJAN101

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177968.002	LB145992.014	pH	pH Units	0.1	8.326	8.502	31	2

Speciated Phenols in Soil

Method: ME-(AU)-ENVJAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178016.005	LB145875.036	Phenol	mg/kg	0.5	<0.5	0	200	0
		2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	0	200	0
		3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	0	200	0
		Total Cresol	mg/kg	1.5	<1.5	0	200	0
		2-chlorophenol	mg/kg	0.5	<0.5	0	200	0
		2,4-dimethylphenol	mg/kg	0.5	<0.5	0	200	0
		2,6-dichlorophenol	mg/kg	0.5	<0.5	0	200	0
		2,4-dichlorophenol	mg/kg	0.5	<0.5	0	200	0
		2,4,6-trichlorophenol	mg/kg	0.5	<0.5	0	200	0
		2-nitrophenol	mg/kg	0.5	<0.5	0	200	0
		4-nitrophenol	mg/kg	1	<1	0	200	0
		2,4,5-trichlorophenol	mg/kg	0.5	<0.5	0	200	0
		2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	0	200	0
		Pentachlorophenol	mg/kg	0.5	<0.5	0	200	0
		2,4-dinitrophenol	mg/kg	2	<2	0	200	0
		4-chloro-3-methylphenol	mg/kg	2	<2	0	200	0
		Surrogates						
		2,4,6-Tribromophenol (Surrogate)	mg/kg	-	5.2	5.15	30	1
		d5-phenol (Surrogate)	mg/kg	-	2.2	2.23	30	2

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

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

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.

Total Cyanide in soil by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN077/AN287

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178016.001	LB145956.004	Total Cyanide	mg/kg	0.5	<0.5	<0.5	200	0

Total Fluoride in Soil

Method: ME-(AU)-IENVIAN142

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SF178016.009	LB145905.007	Total Fluoride	mg/kg	50	300	14.430884480	46	6

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 %
SE177934.002	LB145931.014	Arsenic, As	mg/kg	3	1.6919431279	1.6009784436	91	6
		Cadmium, Cd	mg/kg	0.3	0.0331753554	0.0090964684	200	0
		Chromium, Cr	mg/kg	0.3	12.327014218	9.9742776333	34	21
		Copper, Cu	mg/kg	0.5	0.7109004739	0.4502751872	116	35
		Nickel, Ni	mg/kg	0.5	0.7677725118	0.4775645925	110	42
		Lead, Pb	mg/kg	1	5.3696682464	4.1207001987	51	26
		Zinc, Zn	mg/kg	0.5	6.0142180094	3.5066885797	72	53
SE178016.007	LB145931.024	Silver, Ag	mg/kg	1	<1	<1	200	0
		Arsenic, As	mg/kg	3	4	<3	62	48
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	8.9	6.2	37	36
		Copper, Cu	mg/kg	0.5	23	19	32	19
		Molybdenum, Mo	mg/kg	1	<1	<1	200	0
		Nickel, Ni	mg/kg	0.5	8.2	4.7	38	54 ②
		Lead, Pb	mg/kg	1	15	17	36	10
		Selenium, Se	mg/kg	3	<3	<3	197	0
		Tin, Sn	mg/kg	3	<3	<3	200	0
		Zinc, Zn	mg/kg	0.5	28	20	38	32
SE178016.011	LB146016.024	Lead, Pb	mg/kg	1	14	15	37	6
SE178101.007	LB146016.014	Lead, Pb	mg/kg	1	12.415442976	04.616056703	37	16

TRH (Total Recoverable Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178016.005	LB145875.035	TRH C10-C14	mg/kg	20	<20	0	200	0
		TRH C15-C28	mg/kg	45	<45	0	200	0
		TRH C29-C36	mg/kg	45	<45	0	200	0
		TRH C37-C40	mg/kg	100	<100	0	200	0
		TRH C10-C36 Total	mg/kg	110	<110	0	200	0
		TRH C10-C40 Total (F bands)	mg/kg	210	<210	0	200	0
	TRH F Bands	TRH >C10-C16	mg/kg	25	<25	0	200	0
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	0	200	0
		TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0
		TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0

VOC's in Soil

Method: ME-(AU)-IENVIAN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178016.010	LB145870.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.7	4.2	50	12
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.1	50	10
			d8-toluene (Surrogate)	mg/kg	-	3.9	4.1	50	7
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.7	3.7	50	0
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE178050.005	LB145870.022	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0

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

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

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

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

VOC's in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178050.005	LB145870.022	Monocyclic	Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	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	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	4.1	50	0
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	4.2	50	0
			d8-toluene (Surrogate)	mg/kg	-	4.0	4.0	50	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.9	3.8	50	3
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE178016.010	LB145870.014	TRH C6-C10	mg/kg	25	<25	<25	200	0	
		TRH C6-C9	mg/kg	20	<20	<20	200	0	
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.7	4.2	30	12
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.1	30	10
			d8-toluene (Surrogate)	mg/kg	-	3.9	4.1	30	7
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.7	3.7	30	0
		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
SE178050.005	LB145870.022	TRH C6-C10	mg/kg	25	<25	<25	200	0	
		TRH C6-C9	mg/kg	20	<20	<20	200	0	
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	4.1	30	0
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	4.2	30	0
			d8-toluene (Surrogate)	mg/kg	-	4.0	4.0	30	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.9	3.8	30	3
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

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

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

Conductivity and TDS by Calculation - Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145992.002	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	NA	303	85 - 115	98

Hexavalent Chromium in Soil UV/Vis

Method: ME-(AU)-[ENV]AN075/AN201

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145911.002	Hexavalent Chromium, Cr6+	mg/kg	0.5	NA	20	70 - 130	109

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145894.002	Mercury	mg/kg	0.05	0.22	0.2	70 - 130	109

OC Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145875.002	Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	100
	Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	98
	Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	93
	Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	95
	Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	96
	p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	79
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.15	40 - 130	89

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145875.002	Naphthalene	mg/kg	0.1	4.8	4	60 - 140	120
	Acenaphthylene	mg/kg	0.1	4.9	4	60 - 140	122
	Acenaphthene	mg/kg	0.1	4.4	4	60 - 140	109
	Phenanthrene	mg/kg	0.1	4.5	4	60 - 140	113
	Anthracene	mg/kg	0.1	4.7	4	60 - 140	116
	Fluoranthene	mg/kg	0.1	4.5	4	60 - 140	112
	Pyrene	mg/kg	0.1	4.7	4	60 - 140	118
	Benzo(a)pyrene	mg/kg	0.1	3.0	4	60 - 140	74
Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	96
	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.6	0.5	40 - 130	114
	d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.5	40 - 130	116

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145875.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	112

pH in soil (1:5)

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145992.003	pH	pH Units	0.1	7.5	7.415	98 - 102	101

Speciated Phenols in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145875.002	Phenol	mg/kg	0.5	1.0	1	70 - 130	103
	2,4-dichlorophenol	mg/kg	0.5	1.0	1	70 - 130	97
	2,4,6-trichlorophenol	mg/kg	0.5	1.0	1	70 - 130	95
	Pentachlorophenol	mg/kg	0.5	0.8	1	70 - 130	79
	2,4,6-Tribromophenol (Surrogate)	mg/kg	-	5.1	5	40 - 130	102
Surrogates	d5-phenol (Surrogate)	mg/kg	-	2.2	2	40 - 130	111

Total Cyanide in soil by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN077/AN287

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

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

Total Cyanide in soil by Discrete Analyser (Aquakem) (continued)
Method: ME-(AU)-[ENV]AN077/AN287

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145956.002	Total Cyanide	mg/kg	0.5	<0.5	0.25	70 - 130	99

Total Fluoride in Soil
Method: ME-(AU)-[ENV]AN142

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145905.002	Total Fluoride	mg/kg	50	NA	200	70 - 130	86

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 %
LB145931.002	Silver, Ag	mg/kg	1	2	2.1	72 - 128	92
	Arsenic, As	mg/kg	3	360	336.32	79 - 120	107
	Cadmium, Cd	mg/kg	0.3	460	416.6	69 - 131	110
	Chromium, Cr	mg/kg	0.3	40	35.2	80 - 120	115
	Copper, Cu	mg/kg	0.5	340	370.46	80 - 120	91
	Molybdenum, Mo	mg/kg	1	460	417	80 - 120	111
	Nickel, Ni	mg/kg	0.5	200	210.88	79 - 120	93
	Lead, Pb	mg/kg	1	97	107.87	79 - 120	90
	Selenium, Se	mg/kg	3	92	83.3	80 - 120	111
	Tin, Sn	mg/kg	3	460	417	80 - 120	110
LB146016.002	Zinc, Zn	mg/kg	0.5	300	301.27	80 - 121	100
	Silver, Ag	mg/kg	1	2	2.1	72 - 128	91
	Arsenic, As	mg/kg	3	330	336.32	79 - 120	98
	Cadmium, Cd	mg/kg	0.3	460	416.6	69 - 131	110
	Chromium, Cr	mg/kg	0.3	31	35.2	80 - 120	87
	Copper, Cu	mg/kg	0.5	320	370.46	80 - 120	85
	Molybdenum, Mo	mg/kg	1	470	417	80 - 120	112
	Nickel, Ni	mg/kg	0.5	180	210.88	79 - 120	85
	Lead, Pb	mg/kg	1	94	107.87	79 - 120	88
	Selenium, Se	mg/kg	3	95	83.3	80 - 120	114
	Tin, Sn	mg/kg	3	450	417	80 - 120	109
	Zinc, Zn	mg/kg	0.5	280	301.27	80 - 121	93

TRH (Total Recoverable Hydrocarbons) in Soil
Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145875.002	TRH C10-C14	mg/kg	20	30	40	60 - 140	75
	TRH C15-C28	mg/kg	45	<45	40	60 - 140	103
	TRH C29-C36	mg/kg	45	<45	40	60 - 140	105
	TRH F Bands	mg/kg	25	32	40	60 - 140	80
	TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	115
	TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	100

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145870.002	Halogenated	1,1-dichloroethene	mg/kg	0.1	1.7	2.56	60 - 140	66
	Aliphatics	1,2-dichloroethane	mg/kg	0.1	2.5	2.56	60 - 140	98
		Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	2.5	2.56	60 - 140	96
	Halogenated	Chlorobenzene	mg/kg	0.1	2.7	2.56	60 - 140	107
	Monocyclic	Benzene	mg/kg	0.1	2.4	2.9	60 - 140	84
	Aromatic	Toluene	mg/kg	0.1	2.7	2.9	60 - 140	93
		Ethylbenzene	mg/kg	0.1	2.1	2.9	60 - 140	72
		m/p-xylene	mg/kg	0.2	4.2	5.8	60 - 140	72
		o-xylene	mg/kg	0.1	2.0	2.9	60 - 140	70
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.4	5	60 - 140	87
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.8	5	60 - 140	76
		d8-toluene (Surrogate)	mg/kg	-	4.2	5	60 - 140	85
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.6	5	60 - 140	92
	Trihalomethan	Chloroform	mg/kg	0.1	2.5	2.56	60 - 140	97

Volatile Petroleum Hydrocarbons in Soil
Method: ME-(AU)-[ENV]AN433

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

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

Volatile Petroleum Hydrocarbons in Soil (continued)

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145870.002	TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	91
	TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	84
	Surrogates						
	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	5	60 - 140	82
	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	85
	d8-toluene (Surrogate)	mg/kg	-	5.7	5	60 - 140	114
	Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	5	60 - 140	103
VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	125

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%
SE178013.001	LB145894.004	Mercury	mg/kg	0.05	0.13	<0.05	0.2	62 Ⓢ

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE177900.001	LB145875.034	Naphthalene	mg/kg	0.1	3.7	<0.1	4	92
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Acenaphthylene	mg/kg	0.1	3.6	<0.1	4	91
		Acenaphthene	mg/kg	0.1	3.6	<0.1	4	91
		Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	3.6	<0.1	4	90
		Anthracene	mg/kg	0.1	3.6	<0.1	4	90
		Fluoranthene	mg/kg	0.1	3.5	<0.1	4	87
		Pyrene	mg/kg	0.1	3.5	<0.1	4	88
		Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
		Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(a)pyrene	mg/kg	0.1	4.0	<0.1	4	100
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	4.0	<0.2	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	4.1	<0.3	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	4.1	<0.2	-	-
		Total PAH (18)	mg/kg	0.8	29	<0.8	-	-
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	-	80
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	88
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	92

Total Cyanide in soil by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN077/AN287

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178016.009	LB145956.008	Total Cyanide	mg/kg	0.5	<0.5	<0.5	0.25	85

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%
SE177976.008	LB145931.004	Arsenic, As	mg/kg	3	57	4	50	107
		Cadmium, Cd	mg/kg	0.3	56	<0.3	50	112
		Chromium, Cr	mg/kg	0.3	74	20	50	109
		Copper, Cu	mg/kg	0.5	63	5.2	50	116
		Nickel, Ni	mg/kg	0.5	56	2.1	50	108
		Lead, Pb	mg/kg	1	69	15	50	108
		Zinc, Zn	mg/kg	0.5	66	6.8	50	118
SE178106.001	LB146016.004	Arsenic, As	mg/kg	3	59	5.06236559139	50	108
		Cadmium, Cd	mg/kg	0.3	55	0.16613941130	50	111
		Chromium, Cr	mg/kg	0.3	63	11.4733922862€	50	104
		Copper, Cu	mg/kg	0.5	78	22.1160875160€	50	112
		Nickel, Ni	mg/kg	0.5	57	5.17964046996	50	104
		Lead, Pb	mg/kg	1	79	27.78925976667	50	103
		Zinc, Zn	mg/kg	0.5	120	38.3614812969€	50	95

TRH (Total Recoverable Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE177900.001	LB145875.034	TRH C10-C14	mg/kg	20	43	<20	40	108
		TRH C15-C28	mg/kg	45	<45	<45	40	108
		TRH C29-C36	mg/kg	45	<45	<45	40	85
		TRH C37-C40	mg/kg	100	<100	<100	-	-
		TRH C10-C36 Total	mg/kg	110	<110	<110	-	-

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.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE177900.001	LB145875.034	TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
		TRH F Bands						
		TRH >C10-C16	mg/kg	25	44	<25	40	110
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	44	<25	-	-
		TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	100
		TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE178016.001	LB145870.004	Monocyclic	Benzene	mg/kg	0.1	1.8	<0.1	2.9	62	
			Aromatic	Toluene	mg/kg	0.1	1.8	<0.1	2.9	63
			Ethylbenzene	mg/kg	0.1	1.9	<0.1	2.9	65	
			m/p-xylene	mg/kg	0.2	4.5	<0.2	5.8	77	
			o-xylene	mg/kg	0.1	2.0	<0.1	2.9	70	
			Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			Surrogates	Dibromofluoromethane (Surrogate)		mg/kg	-	3.6	3.7	-
		d4-1,2-dichloroethane (Surrogate)		mg/kg	-	3.7	3.6	-	74	
		d8-toluene (Surrogate)		mg/kg	-	3.8	4.9	-	76	
		Bromofluorobenzene (Surrogate)		mg/kg	-	4.4	4.4	-	88	
		Totals	Total Xylenes		mg/kg	0.3	6.5	<0.3	-	-
			Total BTEX		mg/kg	0.6	12	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE178016.001	LB145870.004	TRH C6-C10	mg/kg	25	<25	<25	24.65	86	
		TRH C6-C9	mg/kg	20	<20	<20	23.2	80	
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	4.2	-	72
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.7	4.0	-	74
			d8-toluene (Surrogate)	mg/kg	-	3.8	3.6	-	76
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.4	4.0	-	88
		VPH F	Benzene (F0)	mg/kg	0.1	1.8	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	125

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

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

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

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

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the 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 : <http://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.
 - 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 Analytical Report comments for further information.

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Project **DDE-199**
Order Number (Not specified)
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SGS Reference **SE178570 R0**
Date Received 1/5/2018
Date Reported 7/5/2018

COMMENTS

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

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

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES



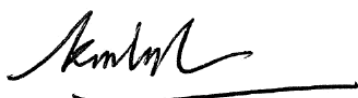
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VOC's in Soil [AN433] Tested: 2/5/2018

PARAMETER	UOM	LOR	E34	E35
			SOIL - 27/4/2018 SE178570.001	SOIL - 27/4/2018 SE178570.002
Benzene	mg/kg	0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1
Dichlorodifluoromethane (CFC-12)	mg/kg	1	<1	-
Chloromethane	mg/kg	1	<1	-
Vinyl chloride (Chloroethene)	mg/kg	0.1	<0.1	-
Styrene (Vinyl benzene)	mg/kg	0.1	<0.1	-
Chloroethane	mg/kg	1	<1	-
Trichlorofluoromethane	mg/kg	1	<1	-
Isopropylbenzene (Cumene)	mg/kg	0.1	<0.1	-
1,1-dichloroethene	mg/kg	0.1	<0.1	-
Dichloromethane (Methylene chloride)	mg/kg	0.5	<0.5	-
n-propylbenzene	mg/kg	0.1	<0.1	-
Allyl chloride	mg/kg	0.1	<0.1	-
1,3,5-trimethylbenzene	mg/kg	0.1	<0.1	-
tert-butylbenzene	mg/kg	0.1	<0.1	-
trans-1,2-dichloroethene	mg/kg	0.1	<0.1	-
1,2,4-trimethylbenzene	mg/kg	0.1	<0.1	-
1,1-dichloroethane	mg/kg	0.1	<0.1	-
sec-butylbenzene	mg/kg	0.1	<0.1	-
cis-1,2-dichloroethene	mg/kg	0.1	<0.1	-
p-isopropyltoluene	mg/kg	0.1	<0.1	-
Bromochloromethane	mg/kg	0.1	<0.1	-
n-butylbenzene	mg/kg	0.1	<0.1	-
Chloroform	mg/kg	0.1	<0.1	-
2,2-dichloropropane	mg/kg	0.1	<0.1	-
1,2-dichloroethane	mg/kg	0.1	<0.1	-
Total MAH*	mg/kg	1.8	<1.8	-
1,1,1-trichloroethane	mg/kg	0.1	<0.1	-
1,1-dichloropropene	mg/kg	0.1	<0.1	-
Carbon tetrachloride	mg/kg	0.1	<0.1	-
1,2-dichloropropane	mg/kg	0.1	<0.1	-
Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	<0.1	-
Bromodichloromethane	mg/kg	0.1	<0.1	-
cis-1,3-dichloropropene	mg/kg	0.1	<0.1	-
trans-1,3-dichloropropene	mg/kg	0.1	<0.1	-
1,1,2-trichloroethane	mg/kg	0.1	<0.1	-
1,3-dichloropropane	mg/kg	0.1	<0.1	-
Chlorodibromomethane	mg/kg	0.1	<0.1	-
Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	<0.1	-
1,1,1,2-tetrachloroethane	mg/kg	0.1	<0.1	-
Chlorobenzene	mg/kg	0.1	<0.1	-
cis-1,4-dichloro-2-butene	mg/kg	1	<1	-
1,1,2,2-tetrachloroethane	mg/kg	0.1	<0.1	-
1,2,3-trichloropropane	mg/kg	0.1	<0.1	-
trans-1,4-dichloro-2-butene	mg/kg	1	<1	-
2-chlorotoluene	mg/kg	0.1	<0.1	-
4-chlorotoluene	mg/kg	0.1	<0.1	-
1,3-dichlorobenzene	mg/kg	0.1	<0.1	-
1,4-dichlorobenzene	mg/kg	0.1	<0.1	-
1,2-dichlorobenzene	mg/kg	0.1	<0.1	-

VOC's in Soil [AN433] Tested: 2/5/2018 (continued)

PARAMETER	UOM	LOR	E34	E35
			SOIL - 27/4/2018 SE178570.001	SOIL - 27/4/2018 SE178570.002
1,2-dibromo-3-chloropropane	mg/kg	0.1	<0.1	-
1,2,4-trichlorobenzene	mg/kg	0.1	<0.1	-
Hexachlorobutadiene	mg/kg	0.1	<0.1	-
1,2,3-trichlorobenzene	mg/kg	0.1	<0.1	-
Total Chlorinated VOC*	mg/kg	3	<3.0	-

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 2/5/2018

PARAMETER	UOM	LOR	E34	E35
			SOIL - 27/4/2018 SE178570.001	SOIL - 27/4/2018 SE178570.002
TRH C6-C9	mg/kg	20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 3/5/2018

PARAMETER	UOM	LOR	E34	E35
			SOIL - 27/4/2018 SE178570.001	SOIL - 27/4/2018 SE178570.002
TRH C10-C14	mg/kg	20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 3/5/2018

PARAMETER	UOM	LOR	E34	E35
			SOIL - 27/4/2018 SE178570.001	SOIL - 27/4/2018 SE178570.002
Naphthalene	mg/kg	0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8

OC Pesticides in Soil [AN420] Tested: 3/5/2018

			E34
			SOIL
			-
			27/4/2018
			SE178570.001
PARAMETER	UOM	LOR	
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1
Lindane	mg/kg	0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1
Aldrin	mg/kg	0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2
Endrin	mg/kg	0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1
Isodrin	mg/kg	0.1	<0.1
Mirex	mg/kg	0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1

PCBs in Soil [AN420] Tested: 3/5/2018

			E34
			SOIL
			-
			27/4/2018
			SE178570.001
PARAMETER	UOM	LOR	
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

Speciated Phenols in Soil [AN420] Tested: 3/5/2018

			E34
			SOIL
			-
			27/4/2018
			SE178570.001
PARAMETER	UOM	LOR	
Phenol	mg/kg	0.5	<0.5
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1
Total Cresol	mg/kg	1.5	<1.5
2-chlorophenol	mg/kg	0.5	<0.5
2,4-dimethylphenol	mg/kg	0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5	<0.5
2,4-dichlorophenol	mg/kg	0.5	<0.5
2,4,6-trichlorophenol	mg/kg	0.5	<0.5
2-nitrophenol	mg/kg	0.5	<0.5
4-nitrophenol	mg/kg	1	<1
2,4,5-trichlorophenol	mg/kg	0.5	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1
Pentachlorophenol	mg/kg	0.5	<0.5
2,4-dinitrophenol	mg/kg	2	<2
4-chloro-3-methylphenol	mg/kg	2	<2



ANALYTICAL RESULTS

SE178570 R0

pH in soil (1:5) [AN101] Tested: 3/5/2018

			E35
			SOIL
			-
			27/4/2018
			SE178570.002
PARAMETER	UOM	LOR	
pH	pH Units	0.1	5.8



ANALYTICAL RESULTS

SE178570 R0

Conductivity and TDS by Calculation - Soil [AN106] Tested: 3/5/2018

			E35
			SOIL
			-
			27/4/2018
			SE178570.002
PARAMETER	UOM	LOR	
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	68

Total Cyanide in soil by Discrete Analyser (Aquakem) [AN077/AN287] Tested: 2/5/2018

			E34
			SOIL
			-
			27/4/2018
			SE178570.001
PARAMETER	UOM	LOR	
Total Cyanide	mg/kg	0.5	<0.5
Total Cyanide Post Chlorination	mg/kg	0.5	-
Cyanide Amenable to Chlorination	mg/kg	0.5	-



ANALYTICAL RESULTS

SE178570 R0

Total Fluoride in Soil [AN142] Tested: 3/5/2018

			E34
			SOIL
			-
			27/4/2018
			SE178570.001
PARAMETER	UOM	LOR	
Total Fluoride	mg/kg	50	190



ANALYTICAL RESULTS

SE178570 R0

Hexavalent Chromium in Soil UV/Vis [AN075/AN201] Tested: 3/5/2018

			E34
			SOIL
			-
			27/4/2018
			SE178570.001
PARAMETER	UOM	LOR	
Hexavalent Chromium, Cr6+	mg/kg	0.5	<0.5

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 3/5/2018

PARAMETER	UOM	LOR	E34	E35	E36
			SOIL - 27/4/2018 SE178570.001	SOIL - 27/4/2018 SE178570.002	SOIL - 27/4/2018 SE178570.003
Arsenic, As	mg/kg	3	<3	<3	-
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	-
Chromium, Cr	mg/kg	0.3	8.7	6.9	-
Copper, Cu	mg/kg	0.5	24	18	-
Lead, Pb	mg/kg	1	16	14	18
Nickel, Ni	mg/kg	0.5	6.6	4.0	-
Zinc, Zn	mg/kg	0.5	24	16	-
Molybdenum, Mo	mg/kg	1	<1	-	-
Tin, Sn	mg/kg	3	<3	-	-
Selenium, Se	mg/kg	3	<3	-	-
Silver, Ag	mg/kg	1	<1	-	-

Mercury in Soil [AN312] Tested: 3/5/2018

			E34	E35
			SOIL	SOIL
			-	-
			27/4/2018	27/4/2018
PARAMETER	UOM	LOR	SE178570.001	SE178570.002
Mercury	mg/kg	0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 2/5/2018

			E34	E35	E36
			SOIL	SOIL	SOIL
			-	-	-
			27/4/2018	27/4/2018	27/4/2018
PARAMETER	UOM	LOR	SE178570.001	SE178570.002	SE178570.003
% Moisture	%w/w	0.5	7.2	12	14

Fibre Identification in soil [AN602] Tested: 3/5/2018

			E34	E35
			SOIL	SOIL
			-	-
			27/4/2018	27/4/2018
			SE178570.001	SE178570.002
PARAMETER	UOM	LOR		
Asbestos Detected	No unit	-	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 2/5/2018

PARAMETER	UOM	LOR	E37	E38
			WATER - 27/4/2018 SE178570.004	WATER - 27/4/2018 SE178570.005
TRH C6-C9	µg/L	40	<40	<40
Benzene (F0)	µg/L	0.5	<0.5	<0.5
TRH C6-C10	µg/L	50	<50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 2/5/2018

PARAMETER	UOM	LOR	E37	E38
			WATER - 27/4/2018 SE178570.004	WATER - 27/4/2018 SE178570.005
TRH C10-C14	µg/L	50	<50	<50
TRH C15-C28	µg/L	200	<200	<200
TRH C29-C36	µg/L	200	<200	<200
TRH C37-C40	µg/L	200	<200	<200
TRH >C10-C16	µg/L	60	<60	<60
TRH >C16-C34 (F3)	µg/L	500	<500	<500
TRH >C34-C40 (F4)	µg/L	500	<500	<500
TRH C10-C36	µg/L	450	<450	<450
TRH C10-C40	µg/L	650	<650	<650
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60	<60

pH in water [AN101] Tested: 3/5/2018

			E37	E38
			WATER	WATER
			-	-
			27/4/2018	27/4/2018
			SE178570.004	SE178570.005
PARAMETER	UOM	LOR		
pH**	No unit	-	6.8	6.9

Conductivity and TDS by Calculation - Water [AN106] Tested: 3/5/2018

			E37	E38
			WATER	WATER
			-	-
			27/4/2018	27/4/2018
			SE178570.004	SE178570.005
PARAMETER	UOM	LOR		
Conductivity @ 25 C	µS/cm	2	150	150

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 3/5/2018

PARAMETER	UOM	LOR	E37	E38
			WATER - 27/4/2018 SE178570.004	WATER - 27/4/2018 SE178570.005
Arsenic, As	µg/L	1	<1	<1
Cadmium, Cd	µg/L	0.1	<0.1	<0.1
Chromium, Cr	µg/L	1	<1	<1
Copper, Cu	µg/L	1	47	45
Lead, Pb	µg/L	1	<1	<1
Nickel, Ni	µg/L	1	<1	<1
Zinc, Zn	µg/L	5	10	13



ANALYTICAL RESULTS

SE178570 R0

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 3/5/2018

			E37	E38
			WATER	WATER
			-	-
			27/4/2018	27/4/2018
PARAMETER	UOM	LOR	SE178570.004	SE178570.005
Mercury	mg/L	0.0001	<0.0001	<0.0001

METHOD

METHODOLOGY SUMMARY

- AN002** The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
- AN020** Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
- AN040/AN320** A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
- AN040** A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
- AN075** This method uses an alkaline digestion to solubilise both water-soluble and water-insoluble forms of hexavalent chromium in solids. The solution is then pH adjusted and the hexavalent chromium concentration in solution determined colourimetrically.
- AN077** Hydrogen cyanide is liberated from an acidified alkali soil extract by distillation and purging with air. The hydrogen cyanide gas is then collected by passing it through a sodium hydroxide scrubbing solution. The scrubbing solution will then be analysed for cyanide by the appropriate method.
- AN101** pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode and is calibrated against 3 buffers purchased commercially. For soils, sediments and sludges, an extract with water (or 0.01M CaCl₂) is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
- AN106** Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos/cm or µS/cm @ 25°C. For soils, an extract with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Salinity can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. Reference APHA 2510 B.
- AN106** Salinity may be calculated in terms of NaCl from the sample conductivity. This assumes all soluble salts present, measured by the conductivity, are present as NaCl.
- AN142** Fluoride can be measured in soil as water extractable or 'total' by Ion Selective electrode. In this method the solid sample is weighed and then fused with sodium hydroxide at 600°C. The sample is carefully neutralise with hydrochloric acid and the solution of the melt is cooled and made up to volume. The final solution is then compared to synthetic Digestion Matrix standards with analysis by ISE electrode for a total fluoride result after being calculated back to original mass.
- AN201** Cr⁶⁺ is determined colourimetrically by reaction with diphenylcarbazide in acid solution. A red-violet colour of unknown composition is produced.
- AN287** A buffered distillate or water sample is treated with chloramine/barbituric acid reagents and the intensity of the colour developed is proportional to the cyanide concentration by Aquakem DA.
- AN311(Perth)/AN312** Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
- AN312** Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
- AN318** Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.
- AN403** Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
- AN403** Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.

AN403

The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.

AN420

(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).

AN420

SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).

AN433

VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC's are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

AN602

Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.

AN602

Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.

AN602

AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

AN602

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

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

FOOTNOTES

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

Samples analysed as received.
Solid samples expressed on a dry weight basis.

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

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

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

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

Note that in terms of units of radioactivity:

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

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

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : <http://www.sgs.com.au/~media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf>

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 Order Number (Not specified)
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SGS Reference SE178570 R0
 Date Received 01 May 2018
 Date Reported 07 May 2018

COMMENTS

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

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

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES



Dong Liang
 Metals/Inorganics Team Leader



Huong Crawford
 Production Manager



Kamrul Ahsan
 Senior Chemist



Ly Kim Ha
 Organic Section Head



Ravee Sivasubramaniam
 Hygiene Team Leader



Shane McDermott
 Inorganic/Metals Chemist



ANALYTICAL REPORT

SE178570 R0

RESULTS

Fibre Identification in soil

Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE178570.001	E34	Soil	303g Clay,Sand	27 Apr 2018	No Asbestos Found	<0.01
SE178570.002	E35	Soil	316g Clay,Sand	27 Apr 2018	No Asbestos Found	<0.01

METHOD

METHODOLOGY SUMMARY

AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states: "Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	<p>The sample can be reported "no asbestos found at the reporting limit of 0.1 g/kg" (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if-</p> <ul style="list-style-type: none"> (a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres); (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg; and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

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

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

Sampled by the client.

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

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

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

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

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : <http://www.sgs.com.au/~media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf>

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STATEMENT OF QA/QC PERFORMANCE

SE178570 R0

CLIENT DETAILS

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Project DDE-199
Order Number (Not specified)
Samples 5

LABORATORY DETAILS

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SGS Reference SE178570 R0
Date Received 01 May 2018
Date Reported 07 May 2018

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 and was supplied by the Client.

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:

Extraction Date	pH in water	2 items
Analysis Date	pH in water	2 items
Duplicate	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	4 items
	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	4 Soil, 1 Water
Date documentation received	1/5/2018	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	8.7°C	Sufficient sample for analysis	Yes
Turnaround time requested	Three Days		

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.

Conductivity and TDS by Calculation - Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E35	SE178570.002	LB147027	27 Apr 2018	01 May 2018	04 May 2018	03 May 2018	04 May 2018	03 May 2018

Conductivity and TDS by Calculation - Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E37	SE178570.004	LB146953	27 Apr 2018	01 May 2018	25 May 2018	03 May 2018	25 May 2018	03 May 2018
E38	SE178570.005	LB146953	27 Apr 2018	01 May 2018	25 May 2018	03 May 2018	25 May 2018	03 May 2018

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E34	SE178570.001	LB147004	27 Apr 2018	01 May 2018	27 Apr 2019	03 May 2018	27 Apr 2019	04 May 2018
E35	SE178570.002	LB147004	27 Apr 2018	01 May 2018	27 Apr 2019	03 May 2018	27 Apr 2019	04 May 2018

Hexavalent Chromium in Soil UV/Vis

Method: ME-(AU)-[ENV]AN075/AN201

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E34	SE178570.001	LB146933	27 Apr 2018	01 May 2018	25 May 2018	03 May 2018	10 May 2018	03 May 2018

Mercury (dissolved) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E37	SE178570.004	LB146948	27 Apr 2018	01 May 2018	25 May 2018	03 May 2018	25 May 2018	03 May 2018
E38	SE178570.005	LB146948	27 Apr 2018	01 May 2018	25 May 2018	03 May 2018	25 May 2018	03 May 2018

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E34	SE178570.001	LB146988	27 Apr 2018	01 May 2018	25 May 2018	03 May 2018	25 May 2018	04 May 2018
E35	SE178570.002	LB146988	27 Apr 2018	01 May 2018	25 May 2018	03 May 2018	25 May 2018	04 May 2018

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E34	SE178570.001	LB146906	27 Apr 2018	01 May 2018	11 May 2018	02 May 2018	07 May 2018	03 May 2018
E35	SE178570.002	LB146906	27 Apr 2018	01 May 2018	11 May 2018	02 May 2018	07 May 2018	03 May 2018
E36	SE178570.003	LB146906	27 Apr 2018	01 May 2018	11 May 2018	02 May 2018	07 May 2018	03 May 2018

OC Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E34	SE178570.001	LB146931	27 Apr 2018	01 May 2018	11 May 2018	03 May 2018	12 Jun 2018	04 May 2018
E35	SE178570.002	LB146931	27 Apr 2018	01 May 2018	11 May 2018	03 May 2018	12 Jun 2018	04 May 2018

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
E34	SE178570.001	LB146931	27 Apr 2018	01 May 2018	11 May 2018	03 May 2018	12 Jun 2018	04 May 2018
E35	SE178570.002	LB146931	27 Apr 2018	01 May 2018	11 May 2018	03 May 2018	12 Jun 2018	04 May 2018

PCBs in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E34	SE178570.001	LB146931	27 Apr 2018	01 May 2018	11 May 2018	03 May 2018	12 Jun 2018	04 May 2018
E35	SE178570.002	LB146931	27 Apr 2018	01 May 2018	11 May 2018	03 May 2018	12 Jun 2018	04 May 2018

pH in soil (1:5)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E35	SE178570.002	LB147027	27 Apr 2018	01 May 2018	04 May 2018	03 May 2018	04 May 2018	04 May 2018

pH in water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E37	SE178570.004	LB146953	27 Apr 2018	01 May 2018	28 Apr 2018	03 May 2018†	28 Apr 2018	03 May 2018†
E38	SE178570.005	LB146953	27 Apr 2018	01 May 2018	28 Apr 2018	03 May 2018†	28 Apr 2018	03 May 2018†

Speciated Phenols in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E34	SE178570.001	LB146931	27 Apr 2018	01 May 2018	11 May 2018	03 May 2018	12 Jun 2018	04 May 2018
E35	SE178570.002	LB146931	27 Apr 2018	01 May 2018	11 May 2018	03 May 2018	12 Jun 2018	07 May 2018

Total Cyanide in soil by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN077/AN287

Sample Name	Sample No.	QC Ref
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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.

Total Cyanide in soil by Discrete Analyser (Aquakem) (continued)

Method: ME-(AU)-[ENV]AN077/AN287

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E34	SE178570.001	LB146897	27 Apr 2018	01 May 2018	11 May 2018	02 May 2018	11 May 2018	03 May 2018

Total Fluoride in Soil

Method: ME-(AU)-[ENV]AN142

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E34	SE178570.001	LB146930	27 Apr 2018	01 May 2018	25 May 2018	03 May 2018	25 May 2018	04 May 2018

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
E34	SE178570.001	LB146972	27 Apr 2018	01 May 2018	24 Oct 2018	03 May 2018	24 Oct 2018	03 May 2018
E35	SE178570.002	LB146972	27 Apr 2018	01 May 2018	24 Oct 2018	03 May 2018	24 Oct 2018	03 May 2018
E36	SE178570.003	LB146972	27 Apr 2018	01 May 2018	24 Oct 2018	03 May 2018	24 Oct 2018	03 May 2018

Trace Metals (Dissolved) in Water by ICPMS

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E37	SE178570.004	LB146926	27 Apr 2018	01 May 2018	24 Oct 2018	03 May 2018	24 Oct 2018	03 May 2018
E38	SE178570.005	LB146926	27 Apr 2018	01 May 2018	24 Oct 2018	03 May 2018	24 Oct 2018	03 May 2018

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
E34	SE178570.001	LB146931	27 Apr 2018	01 May 2018	11 May 2018	03 May 2018	12 Jun 2018	04 May 2018
E35	SE178570.002	LB146931	27 Apr 2018	01 May 2018	11 May 2018	03 May 2018	12 Jun 2018	04 May 2018

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E37	SE178570.004	LB146912	27 Apr 2018	01 May 2018	04 May 2018	02 May 2018	11 Jun 2018	04 May 2018
E38	SE178570.005	LB146912	27 Apr 2018	01 May 2018	04 May 2018	02 May 2018	11 Jun 2018	04 May 2018

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E34	SE178570.001	LB146915	27 Apr 2018	01 May 2018	11 May 2018	02 May 2018	11 Jun 2018	04 May 2018
E35	SE178570.002	LB146915	27 Apr 2018	01 May 2018	11 May 2018	02 May 2018	11 Jun 2018	04 May 2018

Volatile Petroleum Hydrocarbons in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E34	SE178570.001	LB146915	27 Apr 2018	01 May 2018	11 May 2018	02 May 2018	11 Jun 2018	04 May 2018
E35	SE178570.002	LB146915	27 Apr 2018	01 May 2018	11 May 2018	02 May 2018	11 Jun 2018	04 May 2018

Volatile Petroleum Hydrocarbons in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
E37	SE178570.004	LB146923	27 Apr 2018	01 May 2018	04 May 2018	02 May 2018	11 Jun 2018	04 May 2018
E38	SE178570.005	LB146923	27 Apr 2018	01 May 2018	04 May 2018	02 May 2018	11 Jun 2018	04 May 2018

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]JAN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	E34	SE178570.001	%	60 - 130%	112

PAH (Polynuclear Aromatic Hydrocarbons) In Soil

Method: ME-(AU)-[ENV]JAN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	E34	SE178570.001	%	70 - 130%	100
	E35	SE178570.002	%	70 - 130%	96
d14-p-terphenyl (Surrogate)	E34	SE178570.001	%	70 - 130%	102
	E35	SE178570.002	%	70 - 130%	92
d5-nitrobenzene (Surrogate)	E34	SE178570.001	%	70 - 130%	92
	E35	SE178570.002	%	70 - 130%	84

PCBs In Soil

Method: ME-(AU)-[ENV]JAN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	E34	SE178570.001	%	60 - 130%	112

Speciated Phenols In Soil

Method: ME-(AU)-[ENV]JAN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2,4,6-Tribromophenol (Surrogate)	E34	SE178570.001	%	70 - 130%	79
d5-phenol (Surrogate)	E34	SE178570.001	%	50 - 130%	102

VOC's In Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	E34	SE178570.001	%	60 - 130%	86
	E35	SE178570.002	%	60 - 130%	73
d4-1,2-dichloroethane (Surrogate)	E34	SE178570.001	%	60 - 130%	88
	E35	SE178570.002	%	60 - 130%	97
d8-toluene (Surrogate)	E34	SE178570.001	%	60 - 130%	94
	E35	SE178570.002	%	60 - 130%	91
Dibromofluoromethane (Surrogate)	E34	SE178570.001	%	60 - 130%	97
	E35	SE178570.002	%	60 - 130%	105

Volatile Petroleum Hydrocarbons In Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	E34	SE178570.001	%	60 - 130%	86
	E35	SE178570.002	%	60 - 130%	73
d4-1,2-dichloroethane (Surrogate)	E34	SE178570.001	%	60 - 130%	88
	E35	SE178570.002	%	60 - 130%	97
d8-toluene (Surrogate)	E34	SE178570.001	%	60 - 130%	94
	E35	SE178570.002	%	60 - 130%	91
Dibromofluoromethane (Surrogate)	E34	SE178570.001	%	60 - 130%	97
	E35	SE178570.002	%	60 - 130%	105

Volatile Petroleum Hydrocarbons In Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	E37	SE178570.004	%	40 - 130%	82
	E38	SE178570.005	%	40 - 130%	89
d4-1,2-dichloroethane (Surrogate)	E37	SE178570.004	%	60 - 130%	115
	E38	SE178570.005	%	60 - 130%	114
d8-toluene (Surrogate)	E37	SE178570.004	%	40 - 130%	116
	E38	SE178570.005	%	40 - 130%	119
Dibromofluoromethane (Surrogate)	E37	SE178570.004	%	40 - 130%	115
	E38	SE178570.005	%	40 - 130%	116

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

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

Conductivity and TDS by Calculation - Soil

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

Sample Number	Parameter	Units	LOR	Result
LB147027.001	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	0

Conductivity and TDS by Calculation - Water

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

Sample Number	Parameter	Units	LOR	Result
LB146953.001	Conductivity @ 25 C	µS/cm	2	<2

Hexavalent Chromium in Soil UV/Vis

Method: ME-(AU)-[ENV]AN075/AN201

Sample Number	Parameter	Units	LOR	Result
LB146933.012	Hexavalent Chromium, Cr6+	mg/kg	0.5	<0.5

Mercury (dissolved) in Water

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

Sample Number	Parameter	Units	LOR	Result
LB146948.001	Mercury	mg/L	0.0001	<0.0001

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB146988.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB146931.001	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
	Alpha BHC	mg/kg	0.1	<0.1
	Lindane	mg/kg	0.1	<0.1
	Heptachlor	mg/kg	0.1	<0.1
	Aldrin	mg/kg	0.1	<0.1
	Beta BHC	mg/kg	0.1	<0.1
	Delta BHC	mg/kg	0.1	<0.1
	Heptachlor epoxide	mg/kg	0.1	<0.1
	Alpha Endosulfan	mg/kg	0.2	<0.2
	Gamma Chlordane	mg/kg	0.1	<0.1
	Alpha Chlordane	mg/kg	0.1	<0.1
	p,p'-DDE	mg/kg	0.1	<0.1
	Dieldrin	mg/kg	0.2	<0.2
	Endrin	mg/kg	0.2	<0.2
	Beta Endosulfan	mg/kg	0.2	<0.2
	p,p'-DDD	mg/kg	0.1	<0.1
	p,p'-DDT	mg/kg	0.1	<0.1
	Endosulfan sulphate	mg/kg	0.1	<0.1
	Endrin Aldehyde	mg/kg	0.1	<0.1
	Methoxychlor	mg/kg	0.1	<0.1
	Endrin Ketone	mg/kg	0.1	<0.1
	Isodrin	mg/kg	0.1	<0.1
	Mirex	mg/kg	0.1	<0.1
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	105

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB146931.001	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

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
LB146931.001	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1
	Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
	Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
	Benzo(ghi)perylene	mg/kg	0.1	<0.1
	Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates			
	d5-nitrobenzene (Surrogate)	%	-	84
	2-fluorobiphenyl (Surrogate)	%	-	88
	d14-p-terphenyl (Surrogate)	%	-	116

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB146931.001	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			
	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	105

Speciated Phenols in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB146931.001	Phenol	mg/kg	0.5	<0.5
	2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5
	3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1
	2-chlorophenol	mg/kg	0.5	<0.5
	2,4-dimethylphenol	mg/kg	0.5	<0.5
	2,6-dichlorophenol	mg/kg	0.5	<0.5
	2,4-dichlorophenol	mg/kg	0.5	<0.5
	2,4,6-trichlorophenol	mg/kg	0.5	<0.5
	2-nitrophenol	mg/kg	0.5	<0.5
	4-nitrophenol	mg/kg	1	<1
	2,4,5-trichlorophenol	mg/kg	0.5	<0.5
	2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1
	Pentachlorophenol	mg/kg	0.5	<0.5
	2,4-dinitrophenol	mg/kg	2	<2
	4-chloro-3-methylphenol	mg/kg	2	<2
	Surrogates			
	2,4,6-Tribromophenol (Surrogate)	%	-	98
	d5-phenol (Surrogate)	%	-	110

Total Cyanide in soil by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN077/AN287

Sample Number	Parameter	Units	LOR	Result
LB146897.001	Total Cyanide	mg/kg	0.5	<0.5

Total Fluoride in Soil

Method: ME-(AU)-[ENV]AN142

Sample Number	Parameter	Units	LOR	Result
LB146930.001	Total Fluoride	mg/kg	50	0

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

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

Sample Number	Parameter	Units	LOR
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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.

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES (continued)

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

Sample Number	Parameter	Units	LOR	Result
LB146972.001	Silver, Ag	mg/kg	1	<1
	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Molybdenum, Mo	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Selenium, Se	mg/kg	3	<3
	Tin, Sn	mg/kg	3	<3
	Zinc, Zn	mg/kg	0.5	<0.5

Trace Metals (Dissolved) in Water by ICPMS

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

Sample Number	Parameter	Units	LOR	Result
LB146926.001	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB146931.001	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

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number	Parameter	Units	LOR	Result
LB146912.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB146915.001	Fumigants	2,2-dichloropropane	mg/kg	0.1	<0.1
		1,2-dichloropropane	mg/kg	0.1	<0.1
		cis-1,3-dichloropropene	mg/kg	0.1	<0.1
		trans-1,3-dichloropropene	mg/kg	0.1	<0.1
	Halogenated Aliphatics	Dichlorodifluoromethane (CFC-12)	mg/kg	1	<1
		Chloromethane	mg/kg	1	<1
		Vinyl chloride (Chloroethene)	mg/kg	0.1	<0.1
		Chloroethane	mg/kg	1	<1
		Trichlorofluoromethane	mg/kg	1	<1
		1,1-dichloroethene	mg/kg	0.1	<0.1
		Dichloromethane (Methylene chloride)	mg/kg	0.5	<0.5
		Allyl chloride	mg/kg	0.1	<0.1
		trans-1,2-dichloroethene	mg/kg	0.1	<0.1
		1,1-dichloroethane	mg/kg	0.1	<0.1
		cis-1,2-dichloroethene	mg/kg	0.1	<0.1
		Bromochloromethane	mg/kg	0.1	<0.1
		1,2-dichloroethane	mg/kg	0.1	<0.1
		1,1,1-trichloroethane	mg/kg	0.1	<0.1
		1,1-dichloropropene	mg/kg	0.1	<0.1
		Carbon tetrachloride	mg/kg	0.1	<0.1
		Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	<0.1
		1,1,2-trichloroethane	mg/kg	0.1	<0.1
		1,3-dichloropropane	mg/kg	0.1	<0.1
		Tetrachloroethene (Perchloroethylene,PCE)	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.

VOC's in Soil (continued)

Method: ME-(AU)-ENVJAN433

Sample Number		Parameter	Units	LOR	Result
LB146915.001	Halogenated Aliphatics	1,1,1,2-tetrachloroethane	mg/kg	0.1	<0.1
		cis-1,4-dichloro-2-butene	mg/kg	1	<1
		1,1,2,2-tetrachloroethane	mg/kg	0.1	<0.1
		1,2,3-trichloropropane	mg/kg	0.1	<0.1
		trans-1,4-dichloro-2-butene	mg/kg	1	<1
		1,2-dibromo-3-chloropropane	mg/kg	0.1	<0.1
	Halogenated Aromatics	Hexachlorobutadiene	mg/kg	0.1	<0.1
		Chlorobenzene	mg/kg	0.1	<0.1
		2-chlorotoluene	mg/kg	0.1	<0.1
		4-chlorotoluene	mg/kg	0.1	<0.1
		1,3-dichlorobenzene	mg/kg	0.1	<0.1
		1,4-dichlorobenzene	mg/kg	0.1	<0.1
		1,2-dichlorobenzene	mg/kg	0.1	<0.1
		1,2,4-trichlorobenzene	mg/kg	0.1	<0.1
		1,2,3-trichlorobenzene	mg/kg	0.1	<0.1
	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
		Styrene (Vinyl benzene)	mg/kg	0.1	<0.1
		Isopropylbenzene (Cumene)	mg/kg	0.1	<0.1
		n-propylbenzene	mg/kg	0.1	<0.1
		1,3,5-trimethylbenzene	mg/kg	0.1	<0.1
		tert-butylbenzene	mg/kg	0.1	<0.1
		1,2,4-trimethylbenzene	mg/kg	0.1	<0.1
		sec-butylbenzene	mg/kg	0.1	<0.1
		p-isopropyltoluene	mg/kg	0.1	<0.1
		n-butylbenzene	mg/kg	0.1	<0.1
		Polycyclic VOCs	mg/kg	0.1	<0.1
	Surrogates	Naphthalene	mg/kg	0.1	<0.1
		Dibromofluoromethane (Surrogate)	%	-	111
		d4-1,2-dichloroethane (Surrogate)	%	-	112
		d8-toluene (Surrogate)	%	-	109
Totals	Bromofluorobenzene (Surrogate)		%	-	101
		Total BTEX	mg/kg	0.6	<0.6
		Total MAH*	mg/kg	1.8	<1.8
		Total Chlorinated VOC*	mg/kg	3	<3.0
	Trihalomethanes	Chloroform	mg/kg	0.1	<0.1
		Bromodichloromethane	mg/kg	0.1	<0.1
		Chlorodibromomethane	mg/kg	0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-ENVJAN433

Sample Number		Parameter	Units	LOR	Result
LB146915.001	Surrogates	TRH C6-C9	mg/kg	20	<20
		Dibromofluoromethane (Surrogate)	%	-	111
		d4-1,2-dichloroethane (Surrogate)	%	-	112
		d8-toluene (Surrogate)	%	-	109

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-ENVJAN433

Sample Number		Parameter	Units	LOR	Result
LB146923.001	Surrogates	TRH C6-C9	µg/L	40	<40
		Dibromofluoromethane (Surrogate)	%	-	117
		d4-1,2-dichloroethane (Surrogate)	%	-	120
		d8-toluene (Surrogate)	%	-	108
		Bromofluorobenzene (Surrogate)	%	-	84

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

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

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

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

Conductivity and TDS by Calculation - Soil

Method: ME-(AU)-[ENV]JAN106

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178569.004	LB147027.014	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	230	43.448576271	31	5

Conductivity and TDS by Calculation - Water

Method: ME-(AU)-[ENV]JAN106

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178588.004	LB146953.014	Conductivity @ 25 C	µS/cm	2	4913.61	4891.83	15	0
SE178598.002	LB146953.022	Conductivity @ 25 C	µS/cm	2	204.5	204.78	16	0

Hexavalent Chromium in Soil UV/Vis

Method: ME-(AU)-[ENV]JAN075/AN201

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178570.001	LB146933.015	Hexavalent Chromium, Cr6+	mg/kg	0.5	<0.5	0.16	200	0

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]JAN311(Perth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178570.005	LB146948.009	Mercury	µg/L	0.0001	<0.0001	<0.0001	146	0

Mercury in Soil

Method: ME-(AU)-[ENV]JAN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178447.006	LB146988.014	Mercury	mg/kg	0.05	0.0025959671	0.0021688089	200	0
SE178447.020	LB146988.024	Mercury	mg/kg	0.05	0.00865984520	0.0082322271	200	0

Moisture Content

Method: ME-(AU)-[ENV]JAN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178554.009	LB146906.011	% Moisture	%w/w	0.5	9.6	9.9	40	4
SE178569.004	LB146906.022	% Moisture	%w/w	0.5	8.1	7.0	43	14
SE178571.003	LB146906.030	% Moisture	%w/w	0.5	7.5	7.2	44	5

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]JAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178569.003	LB146931.022	Naphthalene	mg/kg	0.1	<0.1	0.01	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	0.02	200	0
		1-methylnaphthalene	mg/kg	0.1	<0.1	0.01	200	0
		Acenaphthylene	mg/kg	0.1	<0.1	0.02	200	0
		Acenaphthene	mg/kg	0.1	<0.1	0.01	200	0
		Fluorene	mg/kg	0.1	<0.1	0.02	200	0
		Phenanthrene	mg/kg	0.1	1.1	0.4	43	93 @
		Anthracene	mg/kg	0.1	0.3	0.1	75	109 @
		Fluoranthene	mg/kg	0.1	1.1	0.66	41	52 @
		Pyrene	mg/kg	0.1	0.9	0.6	43	42
		Benzo(a)anthracene	mg/kg	0.1	0.5	0.3	55	48
		Chrysene	mg/kg	0.1	0.5	0.27	57	52
		Benzo(b&j)fluoranthene	mg/kg	0.1	0.5	0.37	53	30
		Benzo(k)fluoranthene	mg/kg	0.1	0.2	0.16	81	36
		Benzo(a)pyrene	mg/kg	0.1	0.4	0.31	59	20
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.3	0.25	68	8
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0.03	200	0
		Benzo(ghi)perylene	mg/kg	0.1	0.2	0.21	74	13
		Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0.5	0.4228	52	24
		Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.6	0.5228	62	20
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.6	0.4728	48	21
		Total PAH (18)	mg/kg	0.8	6.0	3.63	47	50 @
		Surrogates						
		d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.53	30	0
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.53	30	2
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4

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

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

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178571.002	LB146931.023	Naphthalene	mg/kg	0.1	<0.1	0	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
		1-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
		Acenaphthylene	mg/kg	0.1	<0.1	0	200	0
		Acenaphthene	mg/kg	0.1	<0.1	0	200	0
		Fluorene	mg/kg	0.1	<0.1	0	200	0
		Phenanthrene	mg/kg	0.1	<0.1	0	200	0
		Anthracene	mg/kg	0.1	<0.1	0	200	0
		Fluoranthene	mg/kg	0.1	<0.1	0	200	0
		Pyrene	mg/kg	0.1	<0.1	0	200	0
		Benzo(a)anthracene	mg/kg	0.1	<0.1	0.01	200	0
		Chrysene	mg/kg	0.1	<0.1	0.01	200	0
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0	200	0
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0	200	0
		Benzo(a)pyrene	mg/kg	0.1	<0.1	0.01	200	0
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0	200	0
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0	200	0
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	0	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	0	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	0.242	134	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	0.121	175	0
		Total PAH (18)	mg/kg	0.8	<0.8	0	200	0
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.46	30	4
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.48	30	0
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.48	30	6

pH in soil (1:5)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178466.028	LB147027.025	pH	pH Units	0.1	6.965	7.057	31	1
SE178569.004	LB147027.014	pH	pH Units	0.1	8.6	8.6	31	1

pH in water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178588.004	LB146953.014	pH**	pH Units	-	7.608	7.597	16	0
SE178598.002	LB146953.022	pH**	pH Units	-	7.838	7.851	16	0

Total Cyanide in soil by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN077/AN287

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178567.003	LB146897.004	Total Cyanide	mg/kg	0.5	<0.5	<0.5	200	0

Total Fluoride in Soil

Method: ME-(AU)-[ENV]AN142

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178567.030	LB146930.013	Total Fluoride	mg/kg	50	220	93.830026338	54	14

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 %
SE178447.010	LB146972.024	Arsenic, As	mg/kg	3	2.1534765295	1.5656620196	84	32
		Cadmium, Cd	mg/kg	0.3	0	-0.0209874265	200	0
		Chromium, Cr	mg/kg	0.3	1.4850103376	1.4817123135	64	0
		Copper, Cu	mg/kg	0.5	0.08884677230	0.0965421620	200	0
		Nickel, Ni	mg/kg	0.5	0.3723102840	0.3567862511	167	0
		Lead, Pb	mg/kg	1	1.6415498889	1.3599852396	97	19
		Zinc, Zn	mg/kg	0.5	1.0069300865	1.0283839003	200	0
SE178629.001	LB146972.014	Arsenic, As	mg/kg	3	3	<3	68	42
		Cadmium, Cd	mg/kg	0.3	0.3	<0.3	129	13
		Chromium, Cr	mg/kg	0.3	6.2	11	36	57 @

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

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

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

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

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES (continued)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178629.001	LB146972.014	Copper, Cu	mg/kg	0.5	89	100	31	13
		Nickel, Ni	mg/kg	0.5	4.7	3.7	42	26
		Lead, Pb	mg/kg	1	290	260	30	12
		Zinc, Zn	mg/kg	0.5	300	250	31	17

Trace Metals (Dissolved) in Water by ICPMS

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178574.005	LB146926.014	Lead, Pb	µg/L	1	<1	<1	200	0
SE178589.001	LB146926.022	Arsenic, As	µg/L	1	5.021	5.184	35	3
		Cadmium, Cd	µg/L	0.1	0.054	0.055	198	0
		Chromium, Cr	µg/L	1	0.024	0.015	200	0
		Copper, Cu	µg/L	1	1.168	1.109	103	5
		Lead, Pb	µg/L	1	0.016	0.006	200	0
		Nickel, Ni	µg/L	1	0.475	0.261	200	0
		Zinc, Zn	µg/L	5	1.12	0.698	200	0

TRH (Total Recoverable Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE178569.003	LB146931.023	TRH C10-C14	mg/kg	20	<20	0	200	0	
		TRH C15-C28	mg/kg	45	<45	0	200	0	
		TRH C29-C36	mg/kg	45	<45	0	200	0	
		TRH C37-C40	mg/kg	100	<100	0	200	0	
		TRH C10-C36 Total	mg/kg	110	<110	0	200	0	
		TRH C10-C40 Total (F bands)	mg/kg	210	<210	0	200	0	
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	0	200	0
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	0	200	0	
		TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0	
		TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0	
SE178571.002	LB146931.024	TRH C10-C14	mg/kg	20	<20	0	200	0	
		TRH C15-C28	mg/kg	45	<45	0	200	0	
		TRH C29-C36	mg/kg	45	<45	0	200	0	
		TRH C37-C40	mg/kg	100	<100	0	200	0	
		TRH C10-C36 Total	mg/kg	110	<110	0	200	0	
		TRH C10-C40 Total (F bands)	mg/kg	210	<210	0	200	0	
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	0	200	0
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	0	200	0	
		TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0	
		TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0	

VOC's in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178447.046	LB146915.031	Monocyclic	Benzene	mg/kg	0.1	0.01	0.01	200	0
			Aromatic	Toluene	mg/kg	0.1	0	0	200
			Ethylbenzene	mg/kg	0.1	0	0	200	0
			m/p-xylene	mg/kg	0.2	0	0	200	0
			o-xylene	mg/kg	0.1	0	0	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.66	4.56	50	22
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.77	4.39	50	15
			d8-toluene (Surrogate)	mg/kg	-	3.64	4.2	50	14
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.83	3.83	50	0
		Totals	Total Xylenes	mg/kg	0.3	0	0	200	0
Total BTEX	mg/kg		0.6	0.01	0.01	200	0		
SE178571.003	LB146915.030	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	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.5	5.9	50	8
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.4	5.9	50	9
			d8-toluene (Surrogate)	mg/kg	-	4.7	5.1	50	8

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

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

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

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

VOC's in Soil (continued)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE178571.003	LB146915.030	Surrogates	Bromofluorobenzene (Surrogate)	mg/kg	-	3.7	4.0	50	7
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTFX	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE178447.046	LB146915.031	TRH C6-C10	mg/kg	25	0	0	200	0	
		TRH C6-C9	mg/kg	20	0	0	200	0	
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.66	4.56	30	22
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.77	4.39	30	15
			d8-toluene (Surrogate)	mg/kg	-	3.64	4.2	30	14
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.83	3.83	30	0
		VPF F Bands	Benzene (F0)	mg/kg	0.1	0.01	0.01	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	-0.01	-0.01	200	0
SE178571.003	LB146915.030	TRH C6-C10	mg/kg	25	<25	<25	200	0	
		TRH C6-C9	mg/kg	20	<20	<20	200	0	
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.5	5.9	30	8
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.4	5.9	30	9
			d8-toluene (Surrogate)	mg/kg	-	4.7	5.1	30	8
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.7	4.0	30	7
		VPF 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

Volatile Petroleum Hydrocarbons in Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE178557.020	LB146923.023	TRH C6-C10	µg/L	50	0	0	200	0	
		TRH C6-C9	µg/L	40	0	0	200	0	
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	6.14	5.91	30	4
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.98	5.68	30	5
			d8-toluene (Surrogate)	µg/L	-	5.85	5.2	30	12
			Bromofluorobenzene (Surrogate)	µg/L	-	4.36	5.55	30	24
		VPH F Bands	Benzene (F0)	µg/L	0.5	0.04	0.1	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	-0.25	-0.45	200	0
SE178580.001	LB146923.024	TRH C6-C10	µg/L	50	0	0	200	0	
		TRH C6-C9	µg/L	40	0	0	200	0	
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.58	5.39	30	3
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.79	5.22	30	10
			d8-toluene (Surrogate)	µg/L	-	5.57	4.9	30	13
			Bromofluorobenzene (Surrogate)	µg/L	-	3.9	4.71	30	19
		VPH F Bands	Benzene (F0)	µg/L	0.5	0.05	0.1	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	-0.19	-0.32	200	0
SE178580.006	LB146923.026	TRH C6-C10	µg/L	50	696.87	890.18	36	24	
		TRH C6-C9	µg/L	40	37.64	45.17	127	12	
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.01	4.87	30	3
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	6.4	6	30	6
			d8-toluene (Surrogate)	µg/L	-	6.17	6.06	30	2
			Bromofluorobenzene (Surrogate)	µg/L	-	4.76	5.67	30	17
		VPH F Bands	Benzene (F0)	µg/L	0.5	0.15	0.17	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	696.24	889.47	36	24

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

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

Conductivity and TDS by Calculation - Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147027.002	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	NA	303	85 - 115	102

Conductivity and TDS by Calculation - Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146953.002	Conductivity @ 25 C	µS/cm	2	310	303	90 - 110	103

Hexavalent Chromium in Soil UV/Vis

Method: ME-(AU)-[ENV]AN075/AN201

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146933.013	Hexavalent Chromium, Cr6+	mg/kg	0.5	21	20	70 - 130	105

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146988.002	Mercury	mg/kg	0.05	0.21	0.2	70 - 130	103

OC Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146931.002	Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	123
	Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	120
	Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	116
	Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	114
	Endrin	mg/kg	0.2	0.2	0.2	60 - 140	118
	p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	96
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	40 - 130	103

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146931.002	Naphthalene	mg/kg	0.1	3.9	4	60 - 140	97
	Acenaphthylene	mg/kg	0.1	3.7	4	60 - 140	93
	Acenaphthene	mg/kg	0.1	3.7	4	60 - 140	93
	Phenanthrene	mg/kg	0.1	5.1	4	60 - 140	127
	Anthracene	mg/kg	0.1	4.9	4	60 - 140	123
	Fluoranthene	mg/kg	0.1	4.6	4	60 - 140	116
	Pyrene	mg/kg	0.1	4.5	4	60 - 140	112
	Benzo(a)pyrene	mg/kg	0.1	4.0	4	60 - 140	101
Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	88
	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92
	d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.5	40 - 130	124

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146931.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	108

pH in soil (1:5)

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147027.003	pH	pH Units	0.1	7.4	7.415	98 - 102	100

pH in water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146953.003	pH**	No unit	-	7.5	7.415	98 - 102	101

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.

Speciated Phenols in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146931.002	Phenol	mg/kg	0.5	1.1	1	70 - 130	108
	2,4-dichlorophenol	mg/kg	0.5	0.8	1	70 - 130	81
	2,4,6-trichlorophenol	mg/kg	0.5	0.8	1	70 - 130	76
	Pentachlorophenol	mg/kg	0.5	0.8	1	70 - 130	83
	Surrogates						
	2,4,6-Tribromophenol (Surrogate)	mg/kg	-	5.1	5	40 - 130	102
	d5-phenol (Surrogate)	mg/kg	-	2.3	2	40 - 130	117

Total Cyanide in soil by Discrete Analyser (Aquamem)

Method: ME-(AU)-[ENV]AN077/AN287

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146897.002	Total Cyanide	mg/kg	0.5	<0.5	0.25	70 - 130	99

Total Fluoride in Soil

Method: ME-(AU)-[ENV]AN142

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146930.002	Total Fluoride	mg/kg	50	NA	200	70 - 130	89

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 %
LB146972.002	Silver, Ag	mg/kg	1	2	2.1	72 - 128	92
	Arsenic, As	mg/kg	3	340	336.32	79 - 120	100
	Cadmium, Cd	mg/kg	0.3	450	416.6	69 - 131	108
	Chromium, Cr	mg/kg	0.3	32	35.2	80 - 120	90
	Copper, Cu	mg/kg	0.5	320	370.46	80 - 120	86
	Molybdenum, Mo	mg/kg	1	460	417	80 - 120	110
	Nickel, Ni	mg/kg	0.5	190	210.88	79 - 120	88
	Lead, Pb	mg/kg	1	97	107.87	79 - 120	90
	Selenium, Se	mg/kg	3	89	83.3	80 - 120	107
	Tin, Sn	mg/kg	3	460	417	80 - 120	109
	Zinc, Zn	mg/kg	0.5	300	301.27	80 - 121	100

Trace Metals (Dissolved) in Water by ICPMS

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146926.002	Arsenic, As	µg/L	1	21	20	80 - 120	103
	Cadmium, Cd	µg/L	0.1	22	20	80 - 120	111
	Chromium, Cr	µg/L	1	22	20	80 - 120	111
	Copper, Cu	µg/L	1	23	20	80 - 120	114
	Lead, Pb	µg/L	1	22	20	80 - 120	112
	Nickel, Ni	µg/L	1	22	20	80 - 120	108
	Zinc, Zn	µg/L	5	22	20	80 - 120	110

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146931.002	TRH C10-C14	mg/kg	20	36	40	60 - 140	90
	TRH C15-C28	mg/kg	45	<45	40	60 - 140	90
	TRH C29-C36	mg/kg	45	<45	40	60 - 140	85
	TRH F Bands						
	TRH >C10-C16	mg/kg	25	35	40	60 - 140	88
	TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	95
	TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	85

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146912.002	TRH C10-C14	µg/L	50	1000	1200	60 - 140	85
	TRH C15-C28	µg/L	200	1200	1200	60 - 140	98
	TRH C29-C36	µg/L	200	1200	1200	60 - 140	102
	TRH F Bands						
	TRH >C10-C16	µg/L	60	1100	1200	60 - 140	93
	TRH >C16-C34 (F3)	µg/L	500	1200	1200	60 - 140	99
	TRH >C34-C40 (F4)	µg/L	500	670	600	60 - 140	112

VOC's in Soil

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

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

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

VOC's in Soil (continued)

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146915.002	Halogenated	1,1-dichloroethene	mg/kg	0.1	1.8	2.56	60 - 140
	Aliphatics	1,2-dichloroethane	mg/kg	0.1	2.2	2.56	60 - 140
		Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	2.0	2.56	60 - 140
	Halogenated	Chlorobenzene	mg/kg	0.1	2.3	2.56	60 - 140
	Monocyclic	Benzene	mg/kg	0.1	2.2	2.9	60 - 140
	Aromatic	Toluene	mg/kg	0.1	2.1	2.9	60 - 140
		Ethylbenzene	mg/kg	0.1	2.0	2.9	60 - 140
		m/p-xylene	mg/kg	0.2	5.8	5.8	60 - 140
		o-xylene	mg/kg	0.1	2.7	2.9	60 - 140
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.8	5	60 - 140
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.9	5	60 - 140
		d8-toluene (Surrogate)	mg/kg	-	4.6	5	60 - 140
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.5	5	60 - 140
	Trihalomethan	Chloroform	mg/kg	0.1	2.1	2.56	60 - 140

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146915.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.8	5	60 - 140
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.9	5	60 - 140
		d8-toluene (Surrogate)	mg/kg	-	4.6	5	60 - 140
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.5	5	60 - 140
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140

Volatile Petroleum Hydrocarbons in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146923.002		TRH C6-C10	µg/L	50	1000	946.63	60 - 140
		TRH C6-C9	µg/L	40	820	818.71	60 - 140
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.6	5	60 - 140
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.5	5	60 - 140
		d8-toluene (Surrogate)	µg/L	-	5.1	5	60 - 140
		Bromofluorobenzene (Surrogate)	µg/L	-	5.7	5	60 - 140
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	710	639.67	60 - 140

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.

Hexavalent Chromium in Soil UV/Vis

Method: ME-(AU)-[ENV]AN075/AN201

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178567.003	LB146933.014	Hexavalent Chromium, Cr6+	mg/kg	0.5	14	<0.5	20	71

Mercury (dissolved) in Water

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178586.009	LB146948.004	Mercury	mg/L	0.0001	0.0089	<0.0001	0.008	112

Mercury in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178570.001	LB146988.004	Mercury	mg/kg	0.05	0.20	<0.05	0.2	91

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Original	Spike	Recovery%
SE178569.002	LB146931.021	Naphthalene	mg/kg	0.1	<0.1	4	102
		2-methylnaphthalene	mg/kg	0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	-	-
		Acenaphthylene	mg/kg	0.1	<0.1	4	99
		Acenaphthene	mg/kg	0.1	<0.1	4	103
		Fluorene	mg/kg	0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	0.3	4	99
		Anthracene	mg/kg	0.1	<0.1	4	100
		Fluoranthene	mg/kg	0.1	0.5	4	98
		Pyrene	mg/kg	0.1	0.4	4	92
		Benzo(a)anthracene	mg/kg	0.1	0.2	-	-
		Chrysene	mg/kg	0.1	0.2	-	-
		Benzo(b&j)fluoranthene	mg/kg	0.1	0.3	-	-
		Benzo(k)fluoranthene	mg/kg	0.1	0.1	-	-
		Benzo(a)pyrene	mg/kg	0.1	0.2	4	103
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.2	-	-
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	-	-
		Benzo(ghi)perylene	mg/kg	0.1	0.1	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0.3	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.4	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.3	-	-
		Total PAH (18)	mg/kg	0.8	2.5	-	-
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	-	104
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	-	102
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	-	106

Total Cyanide in soil by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN077/AN287

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178570.001	LB146897.015	Total Cyanide	mg/kg	0.5	<0.5	<0.5	0.25	91

Total Recoverable Elements in Soil/Waste Solids/Materials by ICP-OES

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178571.002	LB146972.004	Arsenic, As	mg/kg	3	56	<3	50	111
		Cadmium, Cd	mg/kg	0.3	57	<0.3	50	115
		Chromium, Cr	mg/kg	0.3	66	7.2	50	118
		Copper, Cu	mg/kg	0.5	58	0.9	50	115
		Nickel, Ni	mg/kg	0.5	58	0.8	50	115
		Lead, Pb	mg/kg	1	63	4	50	118
		Zinc, Zn	mg/kg	0.5	75	13	50	124

Trace Metals (Dissolved) in Water by ICP-MS

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

QC Sample	Sample Number	Parameter	Units	LOR
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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.

Trace Metals (Dissolved) in Water by ICPMS (continued)

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178553.005	LB146926.004	Arsenic, As	µg/L	1	20	<1	20	102
		Cadmium, Cd	µg/L	0.1	22	<0.1	20	109
		Chromium, Cr	µg/L	1	22	<1	20	112
		Copper, Cu	µg/L	1	23	<1	20	113
		Lead, Pb	µg/L	1	22	<1	20	112
		Nickel, Ni	µg/L	1	21	<1	20	106
		Zinc, Zn	µg/L	5	22	<5	20	107

TRH (Total Recoverable Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Original	Spike	Recovery%	
SE178569.002	LB146931.022	TRH C10-C14	mg/kg	20	<20	40	123	
		TRH C15-C28	mg/kg	45	<45	40	130	
		TRH C29-C36	mg/kg	45	<45	40	123	
		TRH C37-C40	mg/kg	100	<100	-	-	
		TRH C10-C36 Total	mg/kg	110	<110	-	-	
		TRH C10-C40 Total (F bands)	mg/kg	210	<210	-	-	
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	40	135
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	-	-	
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	128	
		TRH >C34-C40 (F4)	mg/kg	120	<120	-	-	

VOC's in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE178447.031	LB146915.004	Monocyclic	Benzene	mg/kg	0.1	2.3	0.02	2.9	78	
			Aromatic	Toluene	mg/kg	0.1	2.3	0	2.9	78
		Ethylbenzene		mg/kg	0.1	2.1	0	2.9	71	
		m/p-xylene		mg/kg	0.2	5.1	0.01	5.8	88	
		o-xylene		mg/kg	0.1	2.4	0	2.9	83	
		Polycyclic		Naphthalene	mg/kg	0.1	<0.1	0	-	-
		Surrogates	Dibromofluoromethane (Surrogate)		mg/kg	-	4.5	5.55	-	90
			d4-1,2-dichloroethane (Surrogate)		mg/kg	-	4.2	5.67	-	83
			d8-toluene (Surrogate)		mg/kg	-	4.5	4.83	-	90
			Bromofluorobenzene (Surrogate)		mg/kg	-	5.2	3.94	-	103
		Totals	Total Xylenes		mg/kg	0.3	7.5	0.01	-	-
			Total BTEX		mg/kg	0.6	14	0.03	-	-

Volatile Petroleum Hydrocarbons in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE178447.031	LB146915.004	TRH C6-C10	mg/kg	25	<25	0	24.65	88	
		TRH C6-C9	mg/kg	20	<20	0	23.2	82	
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.5	5.55	-	90
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	5.67	-	83
			d8-toluene (Surrogate)	mg/kg	-	4.5	4.83	-	90
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.2	3.94	-	103
		VPH F	Benzene (F0)	mg/kg	0.1	2.3	0.02	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	-0.03	7.25	106

Volatile Petroleum Hydrocarbons in Water

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE178580.003	LB146923.025	TRH C6-C10	µg/L	50	864.41	0	946.63	91	
		TRH C6-C9	µg/L	40	708.82	0	818.71	87	
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.41	5.52	-	88
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.37	6.18	-	87	
		d8-toluene (Surrogate)	µg/L	-	4.65	5.25	-	93	
		Bromofluorobenzene (Surrogate)	µg/L	-	4.52	4.29	-	90	
		VPH F	Benzene (F0)	µg/L	0.5	47.89	0.03	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	579.18	-0.07	639.67	91



MATRIX SPIKE DUPLICATES

SE178570 R0

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

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

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

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

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

QC Sample	Sample Number	Parameter	Units	LOR
-----------	---------------	-----------	-------	-----

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 : <http://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.
 - 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 Analytical Report comments for further information.

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

CERTIFICATE OF ANALYSIS

Work Order : **ES1810387**
Client : **DIRT DOCTORS PTY LTD**
Contact : MITCHELL TOFLER
Address : 54 MATCHAM RD
 BUXTON NSW 2571
Telephone : ----
Project : DDE-199
Order number :
C-O-C number : ----
Sampler : MT
Site : ----
Quote number : EN/333/17
No. of samples received : 1
No. of samples analysed : 1

Page : 1 of 2
Laboratory : Environmental Division Sydney
Contact : Customer Services ES
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +61-2-8784 8555
Date Samples Received : 10-Apr-2018 14:25
Date Analysis Commenced : 12-Apr-2018
Issue Date : 17-Apr-2018 12:27



Accreditation No. 825
 Accredited for compliance with
 ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW



General Comments

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

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

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

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

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

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

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 ^ = This result is computed from individual analyte detections at or above the level of reporting
 ø = ALS is not NATA accredited for these tests.
 ~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: **SOIL**
 (Matrix: **SOIL**)

Client sample ID

				E22A	----	----	----	----
Client sampling date / time				09-Oct-2017 10:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1810387-001	-----	-----	-----	-----
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	13.2	----	----	----	----
EG005T: Total Metals by ICP-AES								
Lead	7439-92-1	5	mg/kg	17	----	----	----	----

CERTIFICATE OF ANALYSIS

Work Order : **ES1810388**
Client : **DIRT DOCTORS PTY LTD**
Contact : MITCHELL TOFLER
Address : 54 MATCHAM RD
 BUXTON NSW 2571
Telephone : ----
Project : DDE-199
Order number : ----
C-O-C number : ----
Sampler : MT
Site : ----
Quote number : EN/333/17
No. of samples received : 1
No. of samples analysed : 1

Page : 1 of 2
Laboratory : Environmental Division Sydney
Contact : Customer Services ES
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +61-2-8784 8555
Date Samples Received : 10-Apr-2018 14:25
Date Analysis Commenced : 12-Apr-2018
Issue Date : 17-Apr-2018 12:27



Accreditation No. 825
 Accredited for compliance with
 ISO/IEC 17025 - Testing

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This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW



General Comments

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

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

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

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

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

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

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 ^ = This result is computed from individual analyte detections at or above the level of reporting
 ø = ALS is not NATA accredited for these tests.
 ~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: **SOIL**
 (Matrix: **SOIL**)

Client sample ID

				E13A	----	----	----	----
Client sampling date / time				04-Oct-2017 11:30	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1810388-001	-----	-----	-----	-----
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	13.4	----	----	----	----
EG005T: Total Metals by ICP-AES								
Lead	7439-92-1	5	mg/kg	21	----	----	----	----

CLIENT DETAILS

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Client DIRT DOCTORS GEOTECHNICAL TESTING SERVICES PT
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BUXTON NSW 2571

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Project DDE-199
Order Number (Not specified)
Samples 1

LABORATORY DETAILS

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SGS Reference SE177770 R0
Date Received 10/4/2018
Date Reported 16/4/2018

COMMENTS

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

SIGNATORIES



Dong Liang
Metals/Inorganics Team Leader



Huong Crawford
Production Manager

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 13/4/2018

			R1
			WATER
			-
			4/4/2018
			SE177770.001
PARAMETER	UOM	LOR	
Arsenic, As	µg/L	1	<1
Cadmium, Cd	µg/L	0.1	<0.1
Copper, Cu	µg/L	1	<1
Chromium, Cr	µg/L	1	<1
Nickel, Ni	µg/L	1	<1
Lead, Pb	µg/L	1	<1
Zinc, Zn	µg/L	5	<5

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 16/4/2018

			R1
			WATER
			-
			4/4/2018
			SE177770.001
PARAMETER	UOM	LOR	
Mercury	mg/L	0.0001	<0.0001

METHOD

METHODOLOGY SUMMARY

AN020

Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.

AN311(Perth)/AN312

Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.

AN318

Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.

FOOTNOTES

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

Samples analysed as received.
Solid samples expressed on a dry weight basis.

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

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

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

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

Note that in terms of units of radioactivity:

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

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

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : <http://www.sgs.com.au/~media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf>

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CLIENT DETAILS

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Facsimile (Not specified)
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Project **DDE-199**
Order Number (Not specified)
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SGS Reference **SE177771 R0**
Date Received 10/4/2018
Date Reported 16/4/2018

COMMENTS

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

SIGNATORIES



Dong Liang
 Metals/Inorganics Team Leader



Huong Crawford
 Production Manager



ANALYTICAL RESULTS

SE177771 R0

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 13/4/2018

			R2
			WATER
			-
			9/4/2018
			SE177771.001
PARAMETER	UOM	LOR	
Arsenic, As	µg/L	1	<1
Cadmium, Cd	µg/L	0.1	<0.1
Copper, Cu	µg/L	1	<1
Chromium, Cr	µg/L	1	<1
Nickel, Ni	µg/L	1	<1
Lead, Pb	µg/L	1	<1
Zinc, Zn	µg/L	5	<5



ANALYTICAL RESULTS

SE177771 R0

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 16/4/2018

			R2
			WATER
			-
			9/4/2018
PARAMETER	UOM	LOR	SE177771.001
Mercury	mg/L	0.0001	<0.0001

METHOD

METHODOLOGY SUMMARY

AN020

Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.

AN311(Perth)/AN312

Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.

AN318

Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.

FOOTNOTES

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

Samples analysed as received.
Solid samples expressed on a dry weight basis.

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

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

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

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

Note that in terms of units of radioactivity:

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

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

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : <http://www.sgs.com.au/~media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf>

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CLIENT DETAILS

Contact MITCHELL TOFLER
 Client DIRT DOCTORS GEOTECHNICAL TESTING SERVICES PT
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 BUXTON NSW 2571

Telephone 0424 639 602
 Facsimile (Not specified)
 Email MITCH@DIRTDOCTORS.COM.AU
 Project DDE-199
 Order Number (Not specified)
 Samples 1

LABORATORY DETAILS

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 Email au.environmental.sydney@sgs.com
 SGS Reference SE178572 R0
 Date Received 1/5/2018
 Date Reported 3/5/2018

COMMENTS

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

SIGNATORIES



Dong Liang
 Metals/Inorganics Team Leader

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 3/5/2018

			R3
			WATER
			-
			27/4/2018
			SE178572.001
PARAMETER	UOM	LOR	
Arsenic, As	µg/L	1	<1
Cadmium, Cd	µg/L	0.1	<0.1
Copper, Cu	µg/L	1	<1
Chromium, Cr	µg/L	1	<1
Nickel, Ni	µg/L	1	<1
Lead, Pb	µg/L	1	<1
Zinc, Zn	µg/L	5	<5



ANALYTICAL RESULTS

SE178572 R0

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 3/5/2018

			R3
			WATER
			-
			27/4/2018
PARAMETER	UOM	LOR	SE178572.001
Mercury	mg/L	0.0001	<0.0001

METHOD

METHODOLOGY SUMMARY

AN020

Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.

AN311(Perth)/AN312

Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.

AN318

Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.

FOOTNOTES

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

Samples analysed as received.
Solid samples expressed on a dry weight basis.

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

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

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

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

Note that in terms of units of radioactivity:

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

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

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : <http://www.sgs.com.au/~media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf>

This document is issued by the Company under its General Conditions of Service accessible at 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.

Page 1 of 1

Company Name:	Dirt Doctors	Project Name/No:	DDE-199
Address:	Unit N2 5-7 Hephher Rd, Campbelltown	Purchase Order No:	
		Results Required By:	24hr TAT
		Telephone:	0424 639 602
Contact Name:	Mitchell Tofler	Facsimile:	
		Email Results:	mitch@dirtdoctors.com.au

SGS EHS Alexandria Laboratory

SE177265 COC
Received: 27 - Mar - 2011



CHAIN OF CUSTODY & ANALYSIS REQUEST

Page 1 of 1

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499

Email: au.samplerreceipt.sydney@sgs.com

Company Name: Dirt Doctors

Address: Unit N2 5-7 Hepher Rd, Campbelltown

Contact Name: Mitchell Tofter

Project Name/No: DDE-199

Purchase Order No:

Results Required By: 3 day TAT

Telephone: 0424 639 602

Facsimile:

Email Results: mitch@dirtdoctors.com.au

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	Reg 9, no foreign materials	Asbestos ID in soil	Reg 5	Lead										
E3	04-04-18	1		*		2	*	*												
E4	04-04-18	2		*		2	*	*												
E5	04-04-18	3		*		2		*	*											
E6	04-04-18	4		*		2	*	*												
E7	04-04-18	5		*		2		*	*											
E8	04-04-18	6		*		2	*	*												
E9	04-04-18	7		*		2		*	*											
E10	04-04-18	8		*		2	*	*												
E11	04-04-18	9		*		2		*	*											
E12	04-04-18	10		*		2	*	*												
E13	04-04-18	11		*		2				*										

SGS EHS Alexandria Laboratory



SE177584 COC

Received: 05-Apr-2018

Relinquished By: M.Tofter

Date/Time: 05-04-18 2:00pm

Received By: EA

Date/Time: 5/4/18 5:30

Relinquished By:

Date/Time:

Received By:

Date/Time

Samples Intact: Yes

Temperature: Chilled

Sample Cooler Sealed: Yes

Laboratory Quotation No:

Comments:

Page 1 of 1

Email: au.samplerreceipt.sydney@sgs.com

Email Results: mitch@dirtydoctors.com.au

Received: 10-Apr-2018

Ref: COC3/ver.2/16.08.2007/Page 1 of 1

Page 1 of 1

Email: au.samplereceipt.sydney@sgs.com

Email Results: mitch@dirtdoctors.com.au

SE178016 COC
Received: 16 - Apr - 2018

Comments:

Page 1 of 1

Company Name:	Dirt Doctors	Project Name/No:	DDE-199
Address:	Unit N2 5-7 Hepher Rd, Campbelltown	Purchase Order No:	
		Results Required By:	3 day TAT
		Telephone:	0424 639 602
Contact Name:	Mitchell Tofler	Facsimile:	
		Email Results:	mitch@dirtDoctors.com.au

SGS EHS Alexandria Laboratory

SE178570 COC
Received: 01-May-2018

Relinquished By: M. Toiler	Date/Time: 01-05-18 2:00pm	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By: <i>Nessa</i>	Date/Time <i>01/05/18</i> <i>03:58</i>
Samples Intact: Yes	Temperature: Chilled	Sample Cooler Sealed: Yes	Laboratory Quotation No: <i>3-55</i>
	Comments:		

CHAIN OF CUSTODY

ALS Laboratory:
please tick →

© ADAM, AIDE 21, Bannock Road, Plymouth PL6 6XG
 Tel: 01752 3350 00 Fax: 01752 3350 01
 E: adam@adam-aide.com

DOCKSIDE 30 Sand Street Sheffield QLD 4031
Ph. 07 3240 1220 E. samples@dockside.com.au

DOGLADSTONE 46 Chelmsford Drive Clinton QLD 4050
Ph. 07 3471 5000 E. disposal@doglab.com.au

ORAC/24 79 Highway Road Mackay QLD 4740
Ph: 07 4644 0171 E: info@oracq.com.au

DINGELBUSHIE 2-4 Westall Road Springvale VIC 3171
 Ph. 03 9445 9600 E. synopsis.melbourne@aisglobal.com
 MUDJEE 27 Sydney Road Mudgee NSW 2850
 Ph. 02 6970 0766 E. mudgee.melb@aisglobal.com

ONG•CASTLE 8 Tons Gun Road Warabook NSW 2334
P: +61 8 9394 4431 F: warabook@ongcastle.com.au

DIALYSIS 4111 Gerry Plaza North Haven, CT 06457
 Ph: (203) 236-3131 E: info@gaiglobal.com
 DEPERTH 10 Hix Way Maaga, WA 9000
 Ph: (810) 758-5555 E: examples.perth@gaiglobal.com

0540NEI 077069 Windmark Road Stillfield NSW 2104
Ph. 02 8734 8555 E. enquiries@windmark.com.au

100 W. 10th St. Suite 100
 Portland, ME 04101
 Tel: 603.582.1234
 Fax: 603.582.1235
 Email: info@portlandmaine.com

CLIENT: Dirt Doctors Geotechnical Testing Services

OFFICE: N2, 5-7 Hecker Rd, Cambridge

PROJECT: DDE-199

ORDER NUMBER:

PROJECT MANAGER: Mitch

CONTACT PH: 0424 639 602

SAMPLER: MT

SAMPLER MOBILE:

COC emailed to ALS? NO

EDD FORMAT (or default):

Email Reports to mitch@dirtdoctors.com.au

Email Invoice to admin@dirtydoctors.com.au

TURNAROUND REQUIREMENTS :

(Standard TAT may be longer for some tests e.g.,
Ultra Trace Organics)

ALS QUOTE NO.:

☐ Standard TAT :

☐ Non Standard or urgent TAT :

COC SEQUENCE NUMBER (Circle)

COC:	1	2	3	4	5	6	7
------	---	---	---	---	---	---	---

OF:	1	2	3	4	5	6	7
-----	---	---	---	---	---	---	---

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?

Free ice / frozen ice bricks present upon receipt?

Random Sample Temperature on Receipt

Other comment

Yes No

Yes No

10

5-8 'C

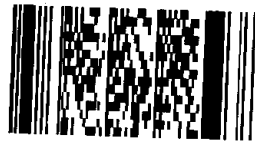
1. **NAME** _____
 2. **ADDRESS** _____
 3. **CITY** _____
 4. **STATE** _____
 5. **ZIP** _____

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)	CONTAINER INFORMATION						ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).							Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE <i>(refer to codes below)</i>	TOTAL CONTAINERS	Lead									Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	E22A	09-10-17, 10:00am	soil		1	*									
TOTAL					1										

Environmental Division
Sydney
Work Order Reference
ES1810387



Telephone : + 61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

HISTORICAL PHOTOGRAPHS

1951



1970



1979



1990



2006



2017



Form: 01T
Licence: 01-05-025
Licensee: LEAP Legal Software Pty Limited
Firm name: Lewarne & Goldsmith

TRANSFER
New South Wales
Real Property Act 1900



AM422172N

PRIVACY NOTE: Section 31B of the Real Property Act 1900 (RP Act) authorises the use of this form for the establishment and maintenance of the Real Property Register. The Register is made available to any person for search upon payment of a fee, if any.

STAMP DUTY

Office of State Revenue use only

NEW SOUTH WALES DUTY

09-03-2017

0009004018-001

SECTION 62A (1)

DUTY

\$ *****500.00

(A) **TORRENS TITLE**

16/717203

(B) **LODGED BY**

Document
Collection
Box

124E

Name, Address or DX, Telephone, and Customer Account Number if any

GlobalX Legal Solutions Pty Ltd
Level 3, 175 Castlereagh Street
SYDNEY 2000

LLPN : 123820V

Reference:

MOB 59 73660

CODES

T

TW

(C) **TRANSFEROR**

Jeffrey Wayne BAILLIE, Suzanne Lee BAILLIE, Trevor John BAILLIE and Claire Maree BAILLIE

(D) **CONSIDERATION**

(E) **ESTATE**

(F) **SHARE**

TRANSFERRED

100%

(G)

Encumbrances (if applicable):

(H) **TRANSFeree**

Kerr Road Investments Pty Limited ACN 611 319 923

(I)

TENANCY:

DATE

(J) I certify that I am an eligible witness and that the transferor signed this dealing in my presence.
[See note* below]

Certified correct for the purposes of the Real Property Act 1900 by the transferor.

Signature of witness:

Signature of transferor: SEE ANNEXURE A & B

Name of witness:

Address of witness:

Certified correct for the purposes of the Real Property Act 1900 by the person whose signature appears below.

Signature:

Signatory's name: Therese Valerie Younes

Signatory's capacity: Solicitor for the Transferee

(K) The transferee's solicitor certifies that the eNOS data relevant to this dealing has been submitted and stored under eNOS ID No. 1290443 Full name: Therese Valerie Younes Signature: [Signature]

ANNEXURE "A" TO TRANSFER

Parties: Jeffrey Wayne Baillie, Suzanne Lee Baillie, Trevor John Baillie and Claire Maree Baillie
(Transferor)
Kerr Road Investments Pty Limited ACN 611 319 923 (Transferee)

Dated: _____

I certify that the person(s) signing opposite, with whom I am personally acquainted or as to whose identify I am otherwise satisfied, signed this instrument in my presence.

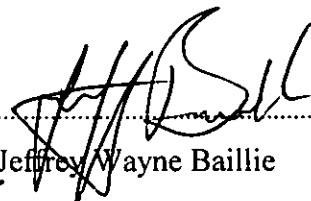
Signature of Witness: 

Name of witness: Therese Younger

Address of witness: 56 Sarnell Street
NORTH PARRAMATTA
NSW

Certified correct for the purposes of the Real Property Act 1900 by the transferor:

Signature of transferor:


Jeffrey Wayne Baillie

I certify that the person(s) signing opposite, with whom I am personally acquainted or as to whose identify I am otherwise satisfied, signed this instrument in my presence.

Signature of Witness: 

Name of witness: Michael Murray

Address of witness: 15 Salignus Place
Navarra Vale
NSW

Certified correct for the purposes of the Real Property Act 1900 by the transferor:

Signature of transferor:

Suzanne Lee Baillie
Suzanne Lee Baillie

Annexure B

Transferor: Jeffrey Wayne Baillie, Suzanne Lee Baillie,
Trevor John Baillie & Claire Maree Baillie
~~Page 2 of 2~~

Transferee: Kerr Road Investments Pty Ltd

I certify that the person(s) signing opposite, with whom I am personally acquainted or as to whose identify I am otherwise satisfied, signed this instrument in my presence.

Certified correct for the purposes of the Real Property Act 1900 by the transferor:

Signature of Witness:



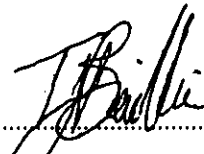
Name of witness:

Thomas Adrian

Address of witness:

2/2 Parkwood rd
Holsworthy NSW 2173

Signature of transferor:



Trevor John Baillie

I certify that the person(s) signing opposite, with whom I am personally acquainted or as to whose identify I am otherwise satisfied, signed this instrument in my presence.

Certified correct for the purposes of the Real Property Act 1900 by the transferor:

Signature of Witness:




Name of witness:

Thomas Adrian

Address of witness:

2/2 Parkwood rd
Holsworthy NSW 2173

Signature of transferor:



Claire Maree Baillie

Form: 01T
Licence: 01-05-025
Licensee: LEAP Legal Software Pty Limited
Firm name: Kerrisons The Law Firm

TRANSFER

New South Wales
Real Property Act 1900



AG529457A

PRIVACY NOTE: Section 31B of the Real Property Act 1900 (RP Act) authorises the use of this form for the establishment and maintenance of the Real Property Act Register. Section 31B of the RP Act requires that the Register is made available to any person for search upon payment of a fee, if any.

STAMP DUTY

Office of State Revenue use only

2 SEP 2011

Client No: 3883022

Duty: 10-00

Trans No: 639546

Acct details:

(A) TORRENS TITLE

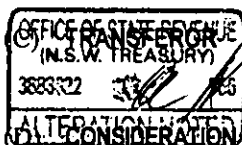
Folio Identifier 16/717203

(B) LODGED BY

Document
Code
Box
37Y
Name, Address or DX, Telephone, and Customer Account Number if any
Westpac Banking Corporation
1 KING ST
CONCORD WEST 2138
IBN35 (02) 8767 3120
LLPN: 123839X 37Y
Reference: 1936/642

CODES

T JT
TF TJ
TK TW



VAUGHAN NEIL STRAWBRIDGE AND NEIL ROBERT CUSSEN

BETH LUTHEM FISH TO NSW TO 098 925 029 (Reverse Mortgage)

(C) CONSIDERATION

The transferor acknowledges receipt of the consideration of \$3,300,000.00 and as regards the abovementioned land transfers to the transferee

(E) ESTATE

(F) SHARE

TRANSFERRED

(G)

Encumbrances (if applicable):

(H) TRANSFeree

JEFFREY WAYNE BAILLIE and SUZANNE LEE BAILLIE as joint tenants as to a one half share AND TREVOR JOHN BAILLIE AND CLAIRE MAREE BAILLIE as joint tenants as to the other half share

(I)

TENANCY: Tenants in common

DATE

(J) I certify that the person(s) signing opposite, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this instrument in my presence.

Certified correct for the purposes of the Real Property Act 1900 by the transferor.

Signature of witness:

Signature of transferor: REFER ANNEXURE "A"

Name of witness:

Address of witness:

Certified correct for the purposes of the Real Property Act 1900 by the person whose signature appears below.

Signature:

Signatory's name: Robert Francis Kerrison

Signatory's capacity: Solicitor for the Transferee

(K) The transferee certifies that the eNOS data relevant to this dealing has been submitted and stored under

eNOS ID No.

Full name:

Signature:

ANNEXURE "A" TO TRANSFER

I certify that the person(s) signing opposite, with whom
I am personally acquainted or as to whose identity I am
otherwise satisfied, signed this instrument in my presence.

Certified correct for the purposes of the Real Property
Act 1900 by the person(s) named below who signed
this instrument as the Receivers and Managers
appointed by Deed of Appointment Book 4601 No.500
under Mortgage AE590923 to Westpac Banking
Corporation

~~Signature of witness to Vaughan Neil Strawbridge:~~

~~Signature of Receiver and Manager:~~

~~Name of witness:~~

~~Address of witness:~~

~~Receiver and Manager's name: Vaughan Neil
Strawbridge~~

Signature of witness to Neil Robert Cussen:

Signature of Receiver and Manager:

Name of witness:

DANIEL ROSE

Address of witness:

225 GEORGE ST. SYDNEY,
NSW 2000

Receiver and Manager's name: Neil Robert Cussen



Form: 01T
Release: 2.1
www.lpi.nsw.gov.au

TRANSFER

New South Wales
Real Property Act 1900



9017393F

PRIVACY NOTE: this information is legally required and will beco

STAMP DUTY

Office of State Revenue use only

NEW SOUTH WALES DUTY
05-04-2002 0000940517-001
SECTION 18(2)
DUTY \$ *****2.00

(A) TORRENS TITLE

16/717203

(B) LODGED BY

Delivery
Box

45A

Name, Address and Telephone

NATIONAL AUSTRALIA BANK
197 Prospect Highway

Seven Hills NSW 2147

45A Fax: 8825 0404

Reference: 52A 21003

CODES

T

TW

(Sheriff)

(C) TRANSFEROR

KYLUK PTY LIMITED [ACN 003 359 788]

(D) **CONSIDERATION** The transferor acknowledges receipt of the consideration of \$ 1,150,000.00 and as regards

(E) **ESTATE** the land specified above transfers to the transferee an estate in fee simple

(F) SHARE TRANSFERRED

(G) Encumbrances (if applicable):

(H) TRANSFEE

BETH LEHEM PTY LTD [ACN 098 925 029]

(I) **TENANCY:**

(J) DATE

Certified correct for the purposes of the Real Property Act 1900
by the corporation named below the common seal of which
was affixed pursuant to the authority specified and in the presence
of the authorised person(s) whose signature(s) appear(s) below.
Corporation:
Authority:

Signature of authorised person:

Name of authorised person:

Office held:

Signature of authorised person:

Name of authorised person: Steven Centiempo
Office held: SOLE Director/Secretary
Kyluk Pty Limited

Certified for the purposes of the Real Property Act
1900 by the person whose signature appears below.

Signature:

Signatory's name:

Signatory's capacity:

RAYMOND JOSEPH ISHAC
transferee's solicitor

Ref:transfer 5 /Src:Q

RP 1305

STAMP DUTY

OF



X675956

TRANSFER

REAL PROPERTY ACT, 1900

T

10	1 of 2
\$ 39	

R1/2

Torrens Title Reference	If Part Only, Delete Whole and Give Details	Location
Folio Identifier 16/717203	WHOLE	Ingleburn
INGLEBURN HOLDINGS PTY LIMITED		

(the abovenamed TRANSFEROR) hereby acknowledges receipt of the consideration of \$ 220,000.00
and transfers an estate in fee simple
in the land above described to the TRANSFEE

CALANE PTY LTD as to a 1/2 share
CALICON PTY LTD as to a 1/5 share
KEJALA PTY LTD as to ^a3/10 share

as ~~joint tenants~~ tenants in common (in the shares indicated)

OFFICE USE ONLY

OVER

PRIOR
ENCUMBRANCES
Note (f)

subject to the following PRIOR ENCUMBRANCES 1.
2. 3.

DATE 16th MAY 1988

We hereby certify this dealing to be correct for the purposes of the Real Property Act, 1900.

EXECUTION
Note (g)

Signed in my presence by the transferor who is personally known to me

THE COMMON SEAL of INGLEBURN HOLDINGS
Signature of Witness

PTY LIMITED was hereunto affixed in
Name of Witness (BLOCK LETTERS)

accordance with its Articles of
Address and occupation of Witness

Association in the presence of:-

Signed in my presence by the transferee who is personally known to me

Signature of Witness

Name of Witness (BLOCK LETTERS)

Address and occupation of Witness



DIRECTOR

Signature of Transferor
SECRETARY

Signature of Transferee
STEPHEN JAMES TOOMEY
SOLICITOR

TO BE COMPLETED
BY LODGING PARTY
Notes (h)
and (i)

LODGED BY

DELIVERY BOX AREA 1730

1007-1008 2004
1007-1008 2004

1007-1008 2004
C Bu - (MAY) 1988
1007-1008 2004

Delivery Box Number

LOCATION OF DOCUMENTS

CT OTHER

Herewith.

In L.T.O. with

Produced by

OFFICE USE ONLY

Checked

Passed

REGISTERED

-19

Signed

Extra Fee



- 8 JUL 1988

Secondary
DirectionsDelivery
Directions

INSTRUCTIONS FOR COMPLETION

This dealing should be marked by the Commissioner of Stamp Duties before lodgment by hand at the Land Titles Office.

Typewriting and handwriting should be clear, legible and in permanent dense black or dark blue non-copying ink.

Alterations are not to be made by erasure; the words rejected are to be ruled through and initialled by the parties to the dealing in the left-hand margin.

If the space provided is insufficient, additional sheets of the same size and quality of paper and having the same margins as this form should be used. Each additional sheet must be identified as an annexure and signed by the parties and the attesting witnesses.

If it is intended to create easements, covenants, &c., use forms RP13A, RP13B, RP13C as appropriate.

Rule up all blanks.

The following instructions relate to the SIDE NOTES on the form.

(a) Description of land:

(i) TORRENS TITLE REFERENCE. — For a manual reference insert the Volume and Folio (e.g., Vol. 8514 Fol. 126) — For a computer folio insert the folio identifier (e.g., 12/701924).

(ii) PART/WHOLE. — If part only of the land in the folio of the Register is being transferred, delete the word "WHOLE" and insert the lot and plan number, portion, &c. See also sections 327 and 327AA of the Local Government Act, 1919.

(iii) LOCATION. — Insert the locality shown on the Certificate of Title/Crown Grant, e.g., at Chullora. If the locality is not shown, insert the Parish and County, e.g., Ph. Lismore Co. Rous.

(b) Show the full name of the transferor(s).

(c) If the estate being transferred is a lesser estate than an estate in fee simple, delete "fee simple" and insert appropriate estate.

(d) Show the full name, address and occupation or description of the transferee(s).

(e) Delete if only one transferee. If more than one transferee, delete either "joint tenants" or "tenants in common", and, if the transferees hold as tenants in common, state the shares in which they hold.

(f) In the memorandum of prior encumbrances, state only the registered number of any mortgage, lease, charge or writ to which this dealing is subject.

(g) Execution:

GENERALLY

(i) Should there be insufficient space for the execution of this dealing, use an annexure sheet.

(ii) The certificate of correctness under the Real Property Act, 1900, must be signed by all parties to the transfer, each party to execute the dealing in the presence of an adult witness, not being a party to the dealing, to whom he/she is personally known. The solicitor for the transferee may sign the certificate on behalf of the transferee, the solicitor's name (not that of his/her firm), to be typewritten or printed adjacent to the signature. Any person falsely or negligently certifying is liable to the penalties provided by section 117 of the Real Property Act, 1900.

ATTORNEY

(iii) If the transfer is executed by an attorney for the transferor/transferee pursuant to a registered power of attorney, the form of attestation must set out the full name of the attorney, and the form of execution must indicate the source of his/her authority, e.g., "AB by his attorney (or receiver or delegate, as the case may be) XY pursuant to power of attorney registered Book No.

AUTHORITY

(iv) If the transfer is executed pursuant to an authority (other than specified in (iii)) the form of execution must indicate the statutory, judicial or other authority pursuant to which the transfer has been executed.

CORPORATION

(v) If the transfer is executed by a corporation under seal, the form of execution should include a statement that the seal has been properly affixed, e.g., in accordance with the Articles of Association of the corporation. Each person attesting the affixing of the seal must state his/her position (e.g., director, secretary) in the corporation.

(h) Insert the name, postal address, Document Exchange reference, telephone number and delivery box number of the lodging party.

(i) The lodging party is to complete the LOCATION OF DOCUMENTS panel. Place a tick in the appropriate box to indicate the whereabouts of the Certificate of Title. List, in an abbreviated form, other documents lodged, e.g., stat. dec. for statutory declaration, p/bt for probate, L/A. for letters of administration, &c.

OFFICE USE ONLY

FIRST SCHEDULE DIRECTIONS

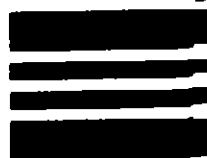
(A) FOLIO IDENTIFIER	(B) DIRECTION	(C) NAME
		CALANE PTY LTD IN $\frac{1}{2}$ SHARE, CALICON PTY LTD IN $\frac{1}{5}$ SHARE AND KEJALA PTY LTD IN $\frac{3}{10}$ SHARE AS TENANTS IN COMMON.

SECOND SCHEDULE AND OTHER DIRECTIONS

(D) FOLIO IDENTIFIER	(E) DIRECTION	(F) NOTFN TYPE	(G) DEALING NUMBER	(H) DETAILS

Ref:transfer42 /Src:Q
RP 13 STAMP DUTY

\$1✓



B



Y730352

TRANSFER
REAL PROPERTY ACT, 1900

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3	2 of 2	A	R ²
\$	44		h

DESCRIPTION
OF LAND
Note (a)TRANSFEROR
Note (b)ESTATE
Note (c)TRANSFeree
Note (d)TENANCY
Note (e)PRIOR
ENCUMBRANCES
Note (f)EXECUTION
Note (g)

Note (g)

TO BE COMPLETED
BY LODGING PARTY
Notes (h)
and (i)

OFFICE USE ONLY

Torrens Title Reference	If Part Only, Delete Whole and Give Details	Location
Folio Identifier 16/717203	WHOLE	at Ingleburn
CALANE PTY.LTD, CALICON PTY.LTD and KEJALA PTY.LTD		

(the abovenamed TRANSFEROR) hereby acknowledges receipt of the consideration of \$617,000-00
and transfers an estate in fee simple
in the land above described to the TRANSFEE

KYLUK PTY LIMITED	OFFICE USE ONLY
as joint tenants/tenants in common	\$1.00

subject to the following PRIOR ENCUMBRANCES 1.
2. 3.

DATE 31.10.89

We hereby certify this dealing to be correct for the purposes of the Real Property Act, 1900.

Signed in my presence by the transferor who is personally known to me

Genevieve Smith
Signature of Witness

GENEVIEVE SMITH
Name of Witness (BLOCK LETTERS)

11 PINES PDE GYMCA. NSW
Address and occupation of Witness

ACCOUNTANT
Signed in my presence by the transferor who is personally known to me

Signed in my presence by the transferor who is personally known to me

.....
Signature of Witness

.....
Name of Witness (BLOCK LETTERS)

.....
Address and occupation of Witness

**THE COMMON SEAL of
CALANE PTY LIMITED**
was hereto affixed
by authority of the
Board of Directors
in the presence of

.....
Secretary.....
DirectorFor further executions see
annexure

Solicitor for the Transferee

P.J. Scarcella

A. CARPENTIER

LOCATION OF DOCUMENTS

LODGED BY PRIORITY SEARCHES		CT		OTHER	
REGISTRATION SERVICE P/L				Herewith.	
FOR: <i>Parisi Scarcella</i>				In L.T.O. with	
Ref: 7541. 983c				Produced by	
Checked	Passed	REGISTERED - -19			
<i>618</i>					
Signed	Extra Fee	Secondary Directions			
		Delivery Directions CT 983C			

Annexure to Transfer between


CALANE PTY LTD
CALICON PTY LTD
KEJALA PTY LTD

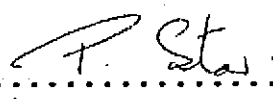
AND

KYLUK PTY LIMITED

DATED

The COMMON SEAL of
CALICON PTY LTD was
hereunto affixed by
authority of the
Board of Directors in
the presence of


.....
Secretary


.....
Director

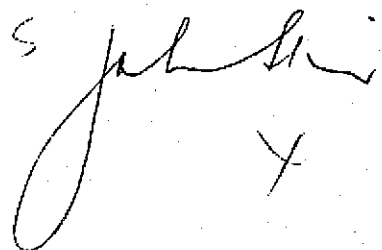


Q 41. Signed in my presence by the
attorney of ~~Kyluk~~ ^{KEJALA} Pty Limited
who is personally known to me

W. Briggs *Genevieve Smith JP*
Paul Power ✓
William ✓
Conferance ✓
GENEVIEVE SMITH
11 PINES PDE
GYMEA. NSW. 2227.
ACCOUNTANT.

Q 41. KEJALA

~~Kyluk~~ Pty Limited by its
attorney John Edward Star
pursuant to Power of Attorney
Book 3784 No. 178

JES 
X Y

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

14339 Vol. 24
(Page 1) Vol. 24

NEW SOUTH WALES

Appln No.9524

Prior Title Vol.11397 Fol.184

CERTIFICATE OF TITLE
REAL PROPERTY ACT, 1900



14339024

Vol. 14339 Fol. 24



CANCELLED EDITION ISSUED

4 2 1981

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

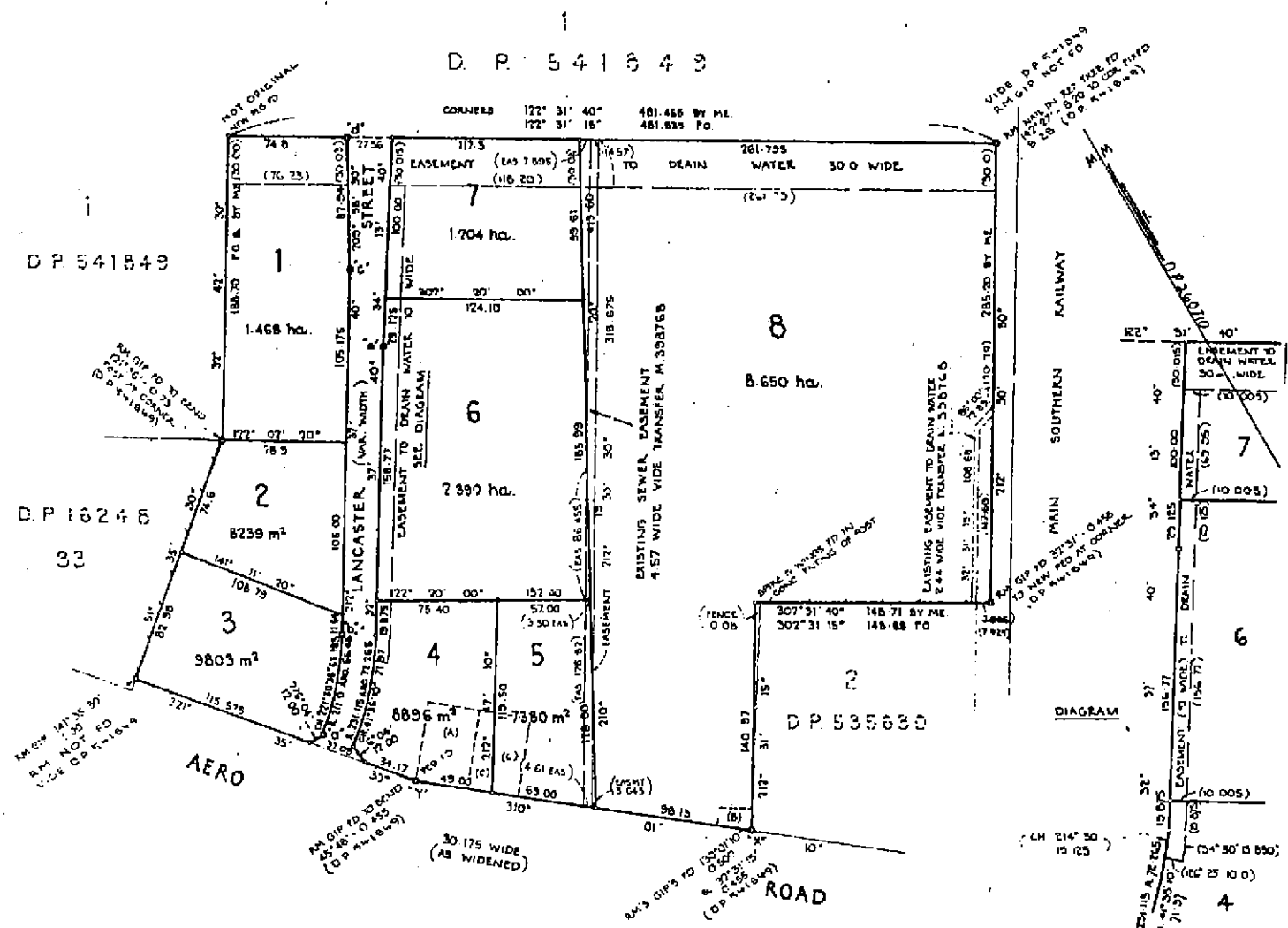
[Signature]

Registrar General.



PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



SCHEDULE OF PERMANENT MARKS

NO	BEARING	DIST.	DESCRIPTION
1	371°10'00"	3.785	DN. & W. ON ROAD
2	371°57'00"	15.875	DN. & W. ON ROAD
3	302°45'00"	2.754737	DN. & W. ON ROAD
4	302°45'00"	2.754737	DN. & W. ON ROAD
5	302°44'10"	3.724737	DN. & W. ON ROAD
6	173°37'40"	3.724737	DN. & W. ON ROAD

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 8 in Deposited Plan 260710 at Ingleburn in the City of Campbelltown Parish of Minto and County of Cumberland being part of Portion 42 granted to Joshua Alliot on 20-8-1812 part of Portion 43 granted to William Hall on 25-8-1812 and part of Portion 44 granted to Timothy Loughlin on 25-8-1812.

FIRST SCHEDULE

INGLEBURN HOLDINGS PTY. LIMITED.

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grants above referred to.
2. C24 Covenant affecting the land shown so burdened in Deposited Plan 260710.
3. M398768 Covenant.
4. M398768 Easement to drain water affecting the land shown so burdened in Deposited Plan 260710.
5. M398768 Easement for sewage affecting the land shown so burdened in Deposited Plan 260710.
6. DP260710 Easement to drain water affecting the land shown so burdened in Deposited Plan 260710.
7. ~~M656358 Caveat by Minister administering the Environmental Planning and Assessment Act 1979.~~

1979M7

[Signature]
Reg. Gen.

10-2-1981

Withdrawn 5920273

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE REGISTRAR GENERAL'S OFFICE.

[illegible]

SECOND SCHEDULE (continued)					
INSTRUMENT		PARTICULARS	REGISTERED	Signature of Registrar General	CANCELLATION.
NATURE	NUMBER				
		Interests created pursuant to Section 89B Conveyancing Act, 1919 by the registration of DP 717203			
		Registered 3-10-1985			
		The interest of the Council of the Local Government Area in the public road dedicated in DP 717203			
		Registered 3-10-1985			
		ERI 717203 Registered 3-10-1985			
		This folio is cancelled as to whole/ upon creation of computer folios for lots 8 to 21 ex. road in the abovementioned plan.			
		The residue of land in this folio complete road.			

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

NEW SOUTH WALES

CERTIFICATE OF TITLE
PROPERTY ACT, 1900, as amended.



11397184

Appln. No.9524
Prior Titles:-
Vol.4301 Fols.205 Vol.4650 Fol.144
and 206 Vol.6758 Fol.214
Vol.4398 Fol. 118 Vol.6914 Fol.107
Vol.4431 Fol. 108 Vol.10880 Fol.119

Vol. 11397 Fol. 184

Edition issued 27-8-1970



I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness

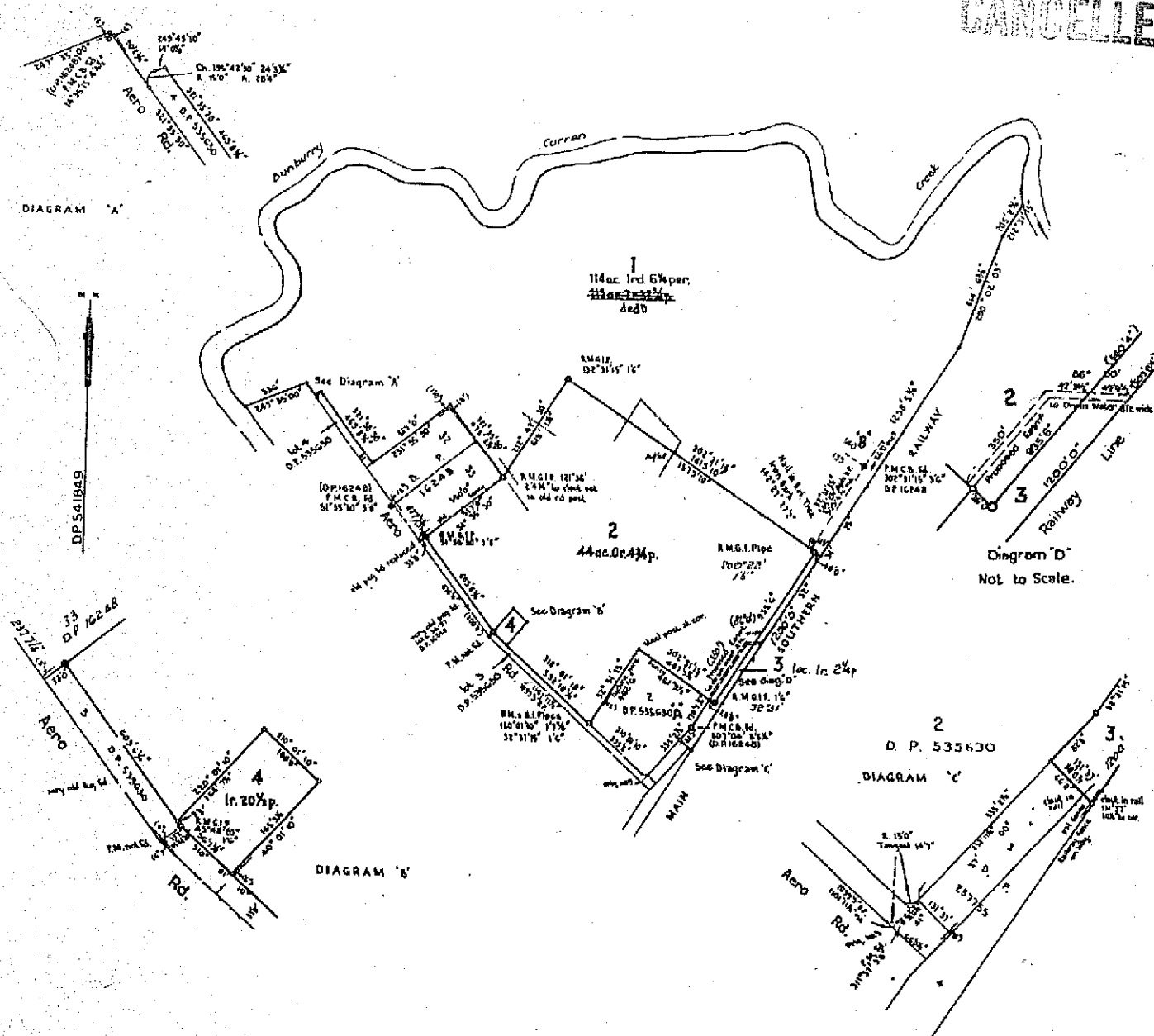
Barnes

Jawatson

Registrar General.



PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lots 2 and 4 in Deposited Plan 541849 at Ingleburn in the City of Campbelltown Parish of Minto and County of Cumberland being part of Portion 42 granted to Joshua Alliot on 20-8-1812, part of Portion 43 granted to William Hall on 25-8-1812 and part of Portion 44 granted to Timothy Loughlin on 25-8-1812.

FIRST SCHEDULE

~~THE STATE PLANNING AUTHORITY OF NEW SOUTH WALES.~~

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant above referred to as regards parts.
2. Covenants created by Transfers Nos.B961498, C24 and C280191 affecting parts.

Jawatson

Registrar General

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE.

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT			ENTERED	Signature of Registrar-General
	NATURE	NUMBER	DATE		
Ingleburn Holdings Pty. Limited	Transfer	M398768	18-8-1971	17-1-1972	<i>Janetson</i>
<p>This deed is concerned as to <u>Whole ex road</u></p> <p>New Certificates of Title have Issued on <u>3/2/81</u></p> <p>for lots in <u>Deposited</u> Plan No. <u>260710</u> as follows:-</p> <p>Lots <u>1-8</u> Vol. <u>14339</u> Fol. <u>17/24</u> respectively.</p>					
<p>The residue of land in this folio comprises</p> <p><u>Road</u></p> <p><i>Janetson</i></p> <p>REGISTRAR GENERAL</p>					
<p><i>Janetson</i></p> <p>REGISTRAR GENERAL</p> <p>NEW CERTIFICATE(S) OF TITLE ISSUED ON <u>DP 260710</u></p> <p>NO DEALING TO BE REGISTERED WITHOUT REFERENCE TO SURVEY DRAFTING BRANCH</p>					

SECOND SCHEDULE (continued)

NATURE	INSTRUMENT		PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION		
	NUMBER	DATE						
Covenant	M398768		created by Transfer No. M398768	17-1-1972	<i>Janetson</i>			
Transfer	M398768	18-8-1971	Easement for Drainage, as more fully set out in the said instrument, appurtenant to the land comprised in Certificate of Title Volume 11397 Folio 182, affecting that part of the land within described, shown as "Proposed Easmt. to Drain Water 8 ft. Wide" in the plan hereon	17-1-1972	<i>Janetson</i>			
Transfer	M398768	18-8-1971	Easement for Sewerage, as more fully set out in the said instrument, appurtenant to the land comprised in Certificate of Title Volume 11397 Folio 182, affecting that part of the land within described, shown as "Proposed Sewer Easement 15 ft. Wide" in plan lodged with Transfer No. M398768	17-1-1972	<i>Janetson</i>			
Caveat	M656358	13-3-1972		29-3-1972	<i>Janetson</i>			
Caveat	N586846	20-11-1973		30-11-1973	<i>Janetson</i>	Withdrawn	N829092	<i>Janetson</i>
Caveat	P185639	5-3-1975		13-3-1975	<i>Janetson</i>	Withdrawn	S159702	<i>Janetson</i>
	DP260710		The interest of the Council of the City of Campbelltown in the land shown in D.P. 260710	10-11-1980	<i>Janetson</i>			
	DP260710		Interests created pursuant to Section 88B Conveyancing Act, 1919, by the registration of Deposited Plan 260710.	10-11-1980	<i>Janetson</i>			

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR-GENERAL ARE CANCELLED